THE THIRTY-NINTH YEAR.

Companion to the Almanac;

OR,

YEAR-BOOK

OF

GENERAL INFORMATION

FOR

1866.

I.

GENERAL INFORMATION ON SUBJECTS OF MATHEMATICS, NATURAL PHILOSOPHY, NATURAL HISTORY, CHRONOLOGY, GEOGRAPHY, FINE ARTS, PUBLIC ECONOMY, &c.

II.

THE PUBLIC IMPROVEMENTS, LEGISLATION, STATISTICS, AND CHRONICLE OF 1865.

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COMPANION TO THE ALMANAC

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PART I.

GENERAL INFORMATION ON SUBJECTS OF MATHEMATICS, NATURAL PHILOSOPHY, NATURAL HISTORY, CHRONOLOGY, GEOGRAPHY, FINE ARTS, PUBLIC ECONOMY, &c.

I.—THE SWEDISH CALCULATING MACHINE AT THE GENERAL REGISTER OFFICE, SOMERSET HOUSE.

WHOEVER has read the preface to Mr. Babbage's tables of logarithms must have been struck with the elaborate and expensive precautions which were taken to guard against errors of computation and typography.

That the precautions which it was considered necessary to adopt were by no means superfluous may be inferred from the circumstance that they resulted in the detection of no less than 40 errors; and, at the close of the preface to the 4th stereotyped impression, Mr. Babbage states, "It is not to be presumed that they are yet free from error," and as one instance, out of many that might be quoted, in which tabular results have been disfigured by errors, it may be mentioned that in 40 extensive Tables which were selected indiscriminately from 140 volumes of mathematical works, comprising part of the library of a private individual, above 3,700 errors were acknowledged in the respective lists of errata;* and perhaps it may truly be said that no table of any magnitude has ever been published which does not contain errors more or less numerous. To some such conclusion it appears Mr. Babbage arrived when he conceived the project of constructing an engine which would not only compute tabular numbers by mechanism, but at the same time impress the results upon some material from which they might be stereotyped.

The *earliest* idea that Mr. Babbage can trace in his own mind of calculating arithmetical tables by machinery is thus stated in his "Passages from the Life of a Philosopher":—

"One evening I was sitting in the rooms of the Analytical Society, at Cambridge, my head leaning forward on the table in a kind of dreamy mood, with a table of logarithms lying open before me. Another member, coming into the room, and seeing me half asleep, called out 'Well, Babbage, what are you dreaming about?' to which I

* "Edinburgh Review," July, 1834, p. 273-4.

replied 'I am thinking that all these tables (pointing to the logarithms) might be calculated by machinery.'"

The idea of combining the act of mechanical computation with that of simultaneous printing, in order to obtain results with the positive certainty of their being exempt from error, appears to have first occurred to Mr. Babbage, and resulted in the construction of his Calculating Machine, or Difference Engine, which was commenced in 1823, but for various reasons abandoned in 1842. The earliest piece of mechanism to which the name of a calculating machine could be applied was invented by Pascal, and consisted of a series of figure-wheels, having cylindrical barrels, not unlike Mr. Babbage's machine; and a complicated machine was invented by Leibnitz; but the accuracy of their results depended more or less upon manipulation, the arithmetical operations being executed from wheel to wheel by hand, and they were both constructed with a view to perform *particular* arithmetical operations.

An account of the principle and action of Mr. Babbage's machine, by Dr. Lardner, appeared in the "Edinburgh Review" for July, 1834; and it was the perusal of this article which induced Mr. George Scheutz, a Swede, to construct a machine for similar purposes.

In the Swedish machine the general plan of Mr. Babbage has been followed in the distribution of digits and differences, but the mechanism by which the additions and carriages are effected is different. The contrivance by which the results are conveyed to the printing apparatus is the same, and is effected by means of "snails," a well-known contrivance common to the striking part of an eight-day clock.

The following brief but lucid statement of Mr. Colebrooke, in his address to the Astronomical Society on Mr. Babbage's machine, also, singularly enough, clearly expresses the distinguishing characteristics of the Swedish Calculating Machine. "It proposes to calculate a series of numbers following any law, by the aid of differences, and that by setting a few figures at the outset a long series of numbers is readily produced by a mechanical operation. The method of differences, in a very wide sense, is the mathematical principle of the contrivance. A machine to add a number of arbitrary figures together is no economy of time or trouble, since each individual figure must be placed in the machine; but it is otherwise when the figures follow some law. The insertion of a few at first, determines the magnitude of the next, and those of the succeeding. It is this constant repetition of similar operations which renders the computation of tables a fit subject for the application of machinery. Mr. Babbage's invention puts an engine in the place of the computer: the question is set to the instrument, or the instrument is set to the question, and by simply giving it motion the solution is wrought, and a string of answers is exhibited . . . It not only saves time and trouble in transcribing results into a tabular form, and setting types for the printing of the table, but it likewise accomplishes the yet more important object of insuring accuracy and obviating numerous sources of error through the careless hands of transcribers and compositors."

The first machine which the Scheutzes (father and son) constructed was made at Stockholm, and showed undoubted proofs of

great mechanical genius. After passing through some years of trial and difficulty, Mr. George Scheutz produced the first model of his machine, and having satisfied himself of the practicability of his scheme, he immediately recommenced his experiments with renewed energy, expending much capital as well as devoting the whole of the time that he could possibly spare from his labours, as an eminent printer, on which the support of his family depended.

His son, Mr. Edward Scheutz, at that time a student in the Royal Technological school of Stockholm, anxious to assist his father, abandoned the career he had chosen, and, working with him for several years, produced, after many trials and alterations, a larger and improved machine; but the economy they had been compelled to use in its construction, contributed greatly to render this new model still unsatisfactory in its actual working, though correct in principle.

After many years of indefatigable labour, and the sacrifice of a large portion of his fortune, he determined to apply for assistance to the Swedish government, to enable him to construct a more perfect instrument. After some difficulty, the Diet consented to advance about 280*l.*, but required a guarantee for the repayment of the amount in case of failure; and, under these conditions, would have ended, unknown and unappreciated, the vast exertions of two men of great ability and enterprise, had not some liberal members of the Swedish academy expressed their sympathy by rendering themselves partly responsible for the amount. By means of the assistance thus afforded them, the Messrs. Scheutz, after working with indefatigable industry, were gratified by seeing the new machine completed before the end of October, 1853.

A further grant from the government of about 560*l.* was made soon after the machine was finished, but the sums placed at the disposal of the Messrs. Scheutz were very far from replacing the *money only* that had been expended during a period extending over nearly twenty years; nevertheless, to quote the words of Mr. Babbage, "Sweden has thus secured for herself the glory of having been the first nation practically to produce a machine for calculating mathematical tables by differences, and printing the results."

In 1854, the inventors visited England, and were warmly received by Mr. Babbage, Dr. Farr, and other scientific authorities. The machine was exhibited in one of the apartments belonging to the Royal Society at Somerset House, where its mechanism was explained by Mr. Gravatt, to whom the inventors have expressed themselves greatly indebted for promoting their undertaking in every way. The machine was afterwards exhibited in Paris, at the Great Exposition, and a gold medal was awarded to the inventors.

It was again brought to England, and set to work out some specimen tables, and was eventually purchased by a liberal American, as a gift to the Dudley Observatory at Albany; but no account has yet reached us of any work that it has performed there.

Dr. Farr had some years previously expressed an opinion as to the practicability of calculating some of the fundamental columns of a life-table by machinery; and, anxious to demonstrate that the calculating-machine was not a mere philosophical curiosity, but an instru-

ment of practical utility, the Registrar-General, at his instance, recommended her Majesty's Government to order a new and superior machine to be constructed for the purpose of performing the numerical computation necessary in the calculation of life-tables. The machine was constructed by the Messrs. Donkin at a cost of 1,200*l.*, and the result has been the production of a valuable and elaborate volume of life-tables for single and joint lives, based on the observations of births and deaths registered in seventeen years.* The tables in this volume have since been selected by Her Majesty's Government for the insurance of the lives of both sexes, as they appear to give the most accurate estimate of the probabilities of English life.

But the first adaptation of this machine to the computation of life-tables was made by Dr. Farr, in the construction of a life-table of the healthy districts of England.†

The machine may be said to consist of three co-operating portions, the calculating apparatus, the printing apparatus, and the numerator. The calculating portion, which is divided into the adding and carrying parts, consists of five tiers of horizontal silver-coated figure-wheels placed round 15 vertical spindles, 15 figure-wheels in each tier. Round the surface of each figure-wheel are engraved the ordinary numerals 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, one of these digits at a time appearing in front, so that the successive numbers shown in any tier, may be read from left to right as in ordinary writing. The uppermost tier is called the function, and exhibits the number or answer resulting from the calculation to 15 places of figures, the first 8 of which the machine stereomoulds. The numbers seen on the second tier of figure-wheels constitute the first order of differences, also to 15 places of figures, and the 3rd, 4th, and 5th tiers of figure-wheels, in like manner, exhibit the second, third, and fourth orders of differences. Any tier can be set by hand. By changing the ordinary figure-wheels on certain spindles, the machine adapts itself to calculate numbers expressed in the mixed senary system of notation required in tabulating degrees, minutes, and seconds.

The rotation of the vertical spindles which gives motion to the figure-wheels is effected by means of a rack extending from the first to the last figure-wheel; the rack is put in motion by a toothed segment, which is pushed in alternate directions by means of what is technically termed a "mangle wheel," the moving power being supplied by turning the handle of the machine continuously.

The first half stroke adds the numbers on the 3rd and 5th rows of figure-wheels to those on the figure-wheels above, viz., the 2nd and 4th rows, consequently altering their positions, the 2nd half stroke causing the figure-wheels in the 2nd and 4th rows to perform the same motion that the 1st half stroke did for the 3rd and 5th rows, the 5th or bottom row of figure-wheels remaining constant. The figure-wheels representing the even differences turn in one direction, and those representing odd differences remain stationary and *vice versâ*.

* "Tables of Lifetimes, Annuities, and Premiums," pp. clv. 605, 4to., with an Introduction by W. Farr, M.D., F.R.S., D.C.L., published under the authority of the Registrar-General of Births, Deaths, and Marriages in England, 1864. Longman, Green, Longman, &c.

† Paper presented to the Royal Society, March 17th, read April 7th, 1859. See Transactions of that year.

Each figure-wheel is provided with as many teeth underneath, as there are figures in the numerical system which the wheel is made to represent; and each figure-wheel, excepting the top tier, is provided with a catch which turns on a vertical axle, so that when the machine is working, the catches at the top of the figure-wheels touch the teeth that are underneath the figure-wheels of the tier above, and thus motion is given to the wheels necessary to produce the required calculation. The teeth of all the rows of figure-wheels, when the machine is set, represent terms in a series of the same order, and lie in the same horizontal planes as figures would be expressed in writing.

When the figures of a tabular term which are used in calculating it are not to be printed, and when the last figure retained for print requires correction, the machine can be so set as to calculate the terms with the required correction in the units' place.

Each figure-wheel, by means of "snails," is made to communicate with the printing apparatus, and while the calculation is in progress, the results are at the same time being stereomoulded, for as each successive result is produced by the calculating apparatus, a strip of lead or other soft material, placed as a matrix on the slide of the printing apparatus, is pressed against the type, which is fixed round the edges of revolving wheels. By means of a ratchet, the printing slab, containing the strip of lead or papier-maché, is made to glide from the position it occupied when receiving the last line of figures, so as to present another blank place for the reception of the impress of a new line in the vertical column of figures. The type wheels are adjusted to print in *straight* lines by means of a suitable ruler.

The Numerator, or numbering apparatus, is combined with the printing apparatus, and at the same time impresses, beside the results, the values of the argument (x), or the indices of tabular terms.

Papier-maché, black-leaded, has been found to supply the best material for receiving the impression made by the machine, and also makes the best matrix for receiving the composition for the stereotype metal.

The machine is limited to calculations involving a regular series, and is not intended for the solution of isolated questions requiring special answers. In the construction of mathematical tables, the functions are often required at very close intervals, and for values, increasing by small steps. In these cases general methods of interpolation come into use, the intervening values of the function being supplied by the machine by the addition of differences. By means of logarithms, questions of a peculiar kind, involving calculations in the higher branches of mathematics, can be reduced to very simple formulas, and brought into such a compass as will readily admit of their insertion in the machine. The art, says Dr. Farr, "is to shape the formulas, and the numerical operations, so that they can be executed by the machine," which only performs the operation of addition, but by various expedients is made to perform also subtraction, multiplication, and division; by a well-known artifice in numbers, adding the arithmetical complement of a number to another number, and throwing away the unit of the highest order in the result, it is made to perform subtraction.

This process will be readily comprehended by an example. Let it

be required to subtract 468 from 879. The common method would be as follows:

From	879
Take	468
	411

The arithmetical complement of 468, or 468 deducted from 1000, is 532.

To	532
Add	879
	1,411

and if the first figure on the left hand be struck out of the sum the result will be 411.

By the introduction of logarithms and their complements, multiplication and division are also reduced to the operation of addition.

It has been stated that the principle upon which the machine computes is by the method of differences, but perhaps the principle will be rendered more clearly intelligible when illustrated by some examples.

If the price of wheat per quarter in England is 44*s.* 3*d.* = 44·25. Then,

	δ^1	δ^2 (Constant).
1 quarter =	44·25	44·25
2 quarters =	88·50	44·25
3 ,, =	132·75	44·25
4 ,, =	177·00	44·25
5 ,, =	221·25	44·25
6 ,, =	265·50	44·25
7 ,, =	309·75	44·25
8 ,, =	354·00	44·25
9 ,, =	398·25	44·25
10 ,, =	442·50	44·25
11 ,, =	486·75	44·25
12 ,, =	531·00	44·25
13 ,, =	575·25	

The above table has been calculated by the addition of 44·25 successively to each term, as it is by this method of differences that the machine would have arrived at the result of the price of the 13 quarters of wheat, 575·25. The results can be checked at any stage of the work by simple arithmetic.

44·25
13
13275
4425
575·25

The machine is capable of receiving four sets of differences, besides the function, as it has five tiers of figure-wheels; but for the sake of illustrating the above example, let us suppose the machine to have only two tiers of figure-wheels, viz., the top, or function row, where the results appear, and a second, or bottom row of figure-wheels, which remain constant; then setting δ^2 44·25 on the function-wheels, and δ^1 44·25 on the bottom tier of figure-wheels, and turning the handle of the machine, the effect of the first half stroke will be to add the numbers of δ^1 to those of δ^2, and the result 88·050 will appear on the function-wheels, the bottom row of figure-wheels retaining their original setting for the next operation. By turning the handle of the machine continuously, the remaining terms will be successively calculated.

Now, if the printing-table be released from the rack, we shall find that the *results*, as they appear in the above table, have been stereo-moulded on a slip of papier-maché, inserted when the machine was set, the argument or *number* of quarters of wheat having been impressed on the paper by the numerator.

Having endeavoured to explain, by a very simple illustration, the principle upon which the machine computes, let us proceed to consider its adaptation for the construction of another form of table, embracing all the tiers of figure-wheels.

The machine has been principally engaged, at the General Register Office, in calculating the fundamental columns of the new English Life-table to which reference has already been made.

The preliminary steps of the work, such as calculating the mortality, at decennial periods of age, and deducing the differences, are performed without the aid of the machine; but when the differences are once obtained, the machine is able to take up the work and continue the calculation by the differential method. There are numerous tables where the last order of differences would not afford a series of rigorously constant differences; but we can almost always obtain a certain number of differences which, within certain limits, remain constant for a long succession of terms; and by this principle of differences, all tables in which the series continually increase or decrease may be produced by the operation of addition, provided the first terms of the table, and of each series of differences, be given to start with.

The logarithms of the probability of males living a year at the ages 20, 30, 40, and 50, having been derived directly from observation, the machine was required to calculate, by the mere addition of the differences, either the intervening logarithms of the *probability of living* a year, or the logarithms of the *numbers living*, at each of the 31 ages from 20 to 50. By adding the differences successively to each other, to the logarithm of the probability at age 20, and then to the logarithm of the numbers living at age 20, the logarithms of the numbers living at the successive ages 21, 22, 23, 24, up to 50, were calculated by the machine.

Example, from the English Life-table, of the method of setting the differences in the machine, in order to interpolate the logarithms of the number of males living at each of the ages 20 to 50 :—

ORIGINAL DIFFERENCES.

$u_x = 5{\cdot}5232361{,}0000 = \lambda l_{20}$ } Setting for the function or row of top figure-wheels.

$\delta^1 = 9{\cdot}9963874{,}0000 = \lambda p_{20}$.

$\delta^2 = 9{\cdot}9999196{,}4155$.

$\delta^3 = 0{\cdot}0000026{,}4330$.

$\delta^4 = 9{\cdot}9999991{,}6530$ (Constant).

But the differences for insertion in the machine have to be taken thus (x = age 20).

$\delta^1 x-1$ = age 19.
$\delta^2 x-1$ = age 19.
$\delta^3 x-2$ = age 18.
$\delta^4 x-2$ = age 18.

DIFFERENCES READY FOR INSERTION.

u_x	$= \lambda l_{20} =$	u_{20}	$5{\cdot}5232361{,}5000$	= Setting for function.
$\delta^1 x-1$	$= \lambda p_{19} =$	$\delta^1{}_{19}$	$9{\cdot}9964712{,}3645$	} Taken from age 19.
$\delta^2 x-1$		$\delta^2{}_{19}$	$9{\cdot}9999161{,}6355$	
$\delta^3 x-2$		$\delta^3{}_{18}$	$0{\cdot}0000043{,}1270$	} Taken from age 18.
$\delta^4 x-2$		$\delta^4{}_{18}$	$9{\cdot}9999991{,}6530$	

Example, showing the effect of each half stroke of the machine:—

Figure-wheels.	Machine as set.	After forward motion.	After backward motion.
1st tier u_{20}	$5{\cdot}5232361{,}5000$	$5{\cdot}5232361{,}5000$	$5{\cdot}5196235{,}5000 = u_{21}$
2nd tier $\delta^1{}_{19}$	$9{\cdot}9964712{,}3645$	$9{\cdot}9963874{,}0000$	$9{\cdot}9963874{,}0000 = \delta^1{}_{20}$
3rd tier $\delta^2{}_{19}$	$9{\cdot}9999161{,}6355$	$9{\cdot}9999161{,}6355$	$9{\cdot}9999196{,}4155 = \delta^2{}_{20}$
4th tier $\delta^3{}_{18}$	$0{\cdot}0000043{,}1270$	$0{\cdot}0000034{,}7800$	$0{\cdot}0000034{,}7800 = \delta^3{}_{19}$
5th tier $\delta^4{}_{18}$	$9{\cdot}9999991{,}6530$	$9{\cdot}9999991{,}6530$	$9{\cdot}9999991{,}6530 = \delta^4{}_{19}$

After the machine has been once set as above it will go on calculating the series λl_{20}, λl_{21} λl_{22}, ... λl_{50} by turning the handle continuously.

At the first half stroke, in the above example, the numbers on the 3rd and 5th tiers are added to the tiers immediately above them, and appear as the 2nd and 4th tiers in column headed "After forward motion," the second half stroke adds these new numbers to the numbers on the 1st and 3rd rows, and thus gives u_{21} = logarithm of the numbers living at age 21 = 5.5196235,5000.

Besides calculating and stereoglyphing the fundamental columns of the New English Life-table, without interest, the machine has also been used to introduce the element of interest in the various tables ($\lambda v^x l_x$), the logarithms of the values of Life Annuities depending on two lives, two males, a male and female, or two females, have also been worked out by the machine.

It is able to compute tables of logarithms of the natural numbers, tables of mensuration, and of the powers of sines, natural sines, and astronomical and nautical tables, &c. &c. It is found that the machine will calculate and stereomould results in 20 minutes which would take an ordinary computer at least ¾ of an hour to calculate alone. Mr. Gravatt states that "at the average rate of working the machine 120 lines per hour of arguments and results are calculated, and actually stereotyped ready for the press. It is found on trial that the machine

calculates and stereotypes, without chance of error, 2½ pages of figures in the same time that a skilful compositor would take merely to set up the types for one single page." By the machine, chances of error which would undoubtedly arise in the ordinary way of computation, are avoided both in the calculation and setting up the figures for printing.

One of the most prominent features of the machine is the method by which it performs the operation of carrying the remainders. In order to effect this, the figure-wheels are brought into action by arms affixed to each of two travelling-bars, which are driven by an endless chain. The machine, by an ingenious arrangement, prepares the mechanism for carrying the tens whilst making the addition, the carriages of the remainders being an after process.

When any wheel in the process of addition passes from 9 to 0, a small projection on the right hand figure-wheel starts out a small lever (by touching its tail) in front of the next left hand figure-wheel, and when the arm of the travelling-bar, which glides along the front of the first and third rows of figure-wheels, finds the levers out, it is compelled to replace them, and in so doing touches one of the teeth underneath the figure-wheel, thus causing the carriage of the figure which its position indicated to be required. The same process is effected at the back of the figure-wheels for the second and fourth rows, the fifth row of figure-wheels requiring no carriage, as it remains constant.

When several carriages have to be made, they are effected by the machine thus:—

To 5654
Add 9878

4422, after forward motion;
1111

15532, after backward motion.

The remainders, or tens, are carried, one after the other, successively by the arms of the travelling-bars, after the 4422 have been computed by that part of the machine which performs the process of addition without carriage.

Thus have we attempted to convey to our readers a general notion of the mathematical principle on which the machine is founded, and of the manner in which that principle is brought into practical operation. Those who are desirous of obtaining clear and precise notions of the details by which mechanism is employed as the substitute for a mental operation, are referred to the "Specification of the Patent," No. 2216, 1854, and to the observations of Mr. Babbage on the "Mechanical Notation" of the Swedish Machine.

F. J. Williams.

Note.—The columns l_x for males and females, in the Table on page 14, are taken from the machine logarithms ($\lambda\, l_x$) they form the basis of the English Life-table, and show, out of a given number of males and females born, the numbers attaining each age, or birthday, from the 1st to the 108th, according to the rate and laws of mortality at different ages in England and Wales, deduced from the enumerated population 1841 and 1851, and from the deaths registered in the 17 years 1838—1854. The persons were obtained by adding the males and females together.

The Table may be read thus:—Of 1,000,000 children born alive, 511,745 are boys and 488,255 are girls; 428,026 boys and 422,481 girls are living at the age 1; therefore 83,719 boys and 65,774 girls die in the first year; or of 1,000,000 children born, 850,507 are alive at age 1, 149,493 having died in the first year. At age 20, only 662,750 are alive, 337,259 having died before attaining that age, and so on.

NUMBER of PERSONS, MALES and FEMALES, LIVING at EACH YEAR of AGE, by the ENGLISH LIFE-TABLE (Numbers to the Machine Logarithms).

For a reading of this Table see note on page 13.

Age.	Numbers (l) attaining each Year of Age (x) to 1,000,000 born. l_x = the numbers surviving at Age x out of 1,000,000 born,			Age.	Numbers (l) attaining each Year of Age (x) to 1,000,000 born. l_x = the numbers surviving at Age x, out of 1,000,000 born.		
x	Persons.	Males.	Females.	x	Persons.	Males.	Females.
0	1,000,000	511,745	488,255	55	421,115	209,539	211,576
1	850,507	428,026	422,481	56	411,532	204,395	207,137
2	796,827	400,505	396,322	57	401,623	199,114	202,509
3	768,589	386 290	382,299	58	391,378	193,686	197,692
4	750,133	377,077	373,056	59	380,785	188,102	192,683
5	736,818	370,358	366,460	60	369,827	182,350	187,477
6	726,919	365,325	361,594	61	358,489	176,421	182,068
7	719,151	361,372	357,779	62	346,752	170,303	176,449
8	712,592	358,062	354,530	63	334,603	163,989	170,614
9	707,134	355,328	351,806	64	322,031	157,474	164,557
10	702,509	353,031	349,478	65	309,029	150,754	158,275
11	698,481	351,048	347,433	66	295,599	143,833	151,766
12	694,844	349,272	345,572	67	281,753	136,718	145,035
13	691,413	347,606	343.807	68	267,509	129,421	138,088
14	688,031	345,969	342,062	69	252,902	121,963	130,939
15	684,563	344,290	340,273	70	237,977	114,370	123,607
16	680,894	342,509	338,385	71	222,793	106,675	116,118
17	676,937	340,581	336,356	72	207,424	98,919	108,505
18	672,620	338,469	334,151	73	191,956	91,149	100,807
19	667,900	336,149	331,751	74	176,487	83,416	93,071
20	662,750	333,608	329,142	75	161,124	75,777	85,347
21	657,167	330,844	326,323	76	145,988	68,294	77,694
22	651,499	328,043	323,456	77	131,199	61,026	70,173
23	645,751	325,207	320,544	78	116,880	54,036	62,844
24	639,931	322,339	317,592	79	103,154	47,381	55,773
25	634,045	319,442	314,603	80	90,133	41,115	49,018
26	628,095	316,516	311,579	81	77,919	35,283	42,636
27	622,086	313,562	308,524	82	66,599	29,922	36,677
28	616,021	310,581	305,440	83	56,241	25,060	31,181
29	609,900	307,572	302,328	84	46,889	20,711	26,178
30	603,724	304,534	299,190	85	38,565	16,877	21,688
31	597,493	301,466	296,027	86	31,265	13,549	17,716
32	591,206	298,366	292,840	87	24,967	10,709	14,258
33	584,863	295,232	289,631	88	19,621	8,325	11,296
34	578,459	292,061	286,398	89	15,162	6,360	8,802
35	571,993	288,850	283,143	90	11,509	4,770	6,739
36	565,460	285,596	279,864	91	8,576	3,519	5,066
37	558,859	282,296	276,563	92	6,266	2,531	3,735
38	552,181	278,944	273,237	93	4,485	1,787	2,698
39	545,425	275,538	269,887	94	3,142	1,234	1,908
40	538,584	272,073	266,511	95	2,153	833	1,320
41	531,653	268,544	263,109	96	1,440	548	892
42	524,626	264,948	259,678	97	940	352	588
43	517,499	261,280	256,219	98	598	220	378
44	510,263	257,534	252,729	99	370	134	236
45	502,915	253,708	249,207	100	223	79	144
46	495,448	249,796	245,652	101	131	46	85
47	487,856	245,795	242,061	102	74	25	49
48	480,134	241,700	238,434	103	41	14	27
49	472,277	237,508	234,769	104	22	7	15
50	464,280	233,216	231,064	105	12	4	8
51	456,139	228,821	227,318	106	6	2	4
52	447,725	224,195	223,530	107	3	1	2
53	439,135	219,437	219,698	108	1		1
54	430,374	214,552	215,822				

LOGARITHMS of the NUMBERS of MALES and FEMALES LIVING at EACH YEAR of AGE. (Machine Logarithms.)

MALES.				FEMALES.			
Age (x)	λl_x	Age (x)	λl_x	Age (x)	λl_x	Age (x)	λl_x
0	5·7090538	55	5·3212644	0	5·6886465	55	5·3254664
1	5·6314702	56	5·3104701	1	5·6258069	56	5·3162583
2	5·6026079	57	5·2991007	2	5·5980479	57	5·3064447
3	5·5869132	58	5·2870978	3	5·5824033	58	5·2959887
4	5·5764301	59	5·2743928	4	5·5717743	59	5·2848423
5	5·5686214	60	5·2609067	5	5·5640266	60	5·2729470
6	5·5626788	61	5·2465500	6	5·5582216	61	5·2602329
7	5·5579539	62	5·2312231	7	5·5536144	62	5·2466194
8	5·5539583	63	5·2148160	8	5·5496536	63	5·2320149
9	5·5506295	64	5·1972084	9	5·5463032	64	5·2163168
10	5·5478129	65	5·1782696	10	5·5434193	65	5·1994118
11	5·5453670	66	5·1578586	11	5·5408707	66	5·1811753
12	5·5431636	67	5·1358242	12	5·5385381	67	5·1614720
13	5·5410877	68	5·1120046	13	5·5363145	68	5·1401557
14	5·5390375	69	5·0862280	14	5·5341051	69	5·1170691
15	5·5369242	70	5·0583120	15	5·5318275	70	5·0920440
16	5·5346726	71	5·0280640	16	5·5294114	71	5·0649013
17	5·5322204	72	4·9952810	17	5·5267986	72	5·0354509
18	5·5295186	73	4·9597499	18	5·5239434	73	5·0034919
19	5·5265313	74	4·9212469	19	5·5208121	74	4·9688124
20	5·5232361	75	4·8795382	20	5·5173833	75	4·9311894
21	5·5196235	76	4·8343795	21	5·5136479	76	4·8903892
22	5·5159306	77	4·7855162	22	5·5098150	77	4·8461669
23	5·5121599	78	4·7326834	23	5·5058879	78	4·7982670
24	5·5083133	79	4·6756059	24	5·5018696	79	4·7464227
25	5·5043918	80	4·6139981	25	5·4977625	80	4·6903565
26	5·5003955	81	4·5475641	26	5·4935685	81	4·6297799
27	5·4963237	82	4·4759977	27	5·4892891	82	4·5643934
28	5·4921749	83	4·3989823	28	5·4849253	83	4·4938867
29	5·4879467	84	4·3161911	29	5·4804778	84	4·4179384
30	5·4836359	85	4·2272869	30	5·4759466	85	4·3362162
31	5·4792385	86	4·1319221	31	5·4713313	86	4·2483769
32	5·4747496	87	4·0297390	32	5·4666311	87	4·1540665
33	5·4701635	88	3·9203692	33	5·4618446	88	4·0529197
34	5·4654737	89	3·8034343	34	5·4569701	89	3·9445605
35	5·4606728	90	3·6785456	35	5·4520053	90	3·8286020
36	5·4557526	91	3·5453037	36	5·4469475	91	3·7046463
37	5·4507040	92	3·4032992	37	5·4417935	92	3·5722846
38	5·4455172	93	3·2521123	38	5·4365396	93	3·4310969
39	5·4401815	94	3·0913128	39	5·4311817	94	3·2806526
40	5·4346853	95	2·9204603	40	5·4257153	95	3·1205101
41	5·4290162	96	2·7391040	41	5·4201352	96	2·9502167
42	5·4231610	97	2·5467827	42	5·4144359	97	2·7693088
43	5·4171056	98	2·3430251	43	5·4086114	98	2·5773121
44	5·4108353	99	2·1273492	44	5·4026553	99	2·3737409
45	5·4043342	100	1·8992630	45	5·3965606	100	2·1580991
46	5·3975858	101	1·6582641	46	5·3903199	101	1·9298792
47	5·3905728	102	1·4038397	47	5·3839253	102	1·6885630
48	5·3832768	103	1·1354667	48	5·3773685	103	1·4336213
49	5·3756788	104	0·8526118	49	5·3706407	104	1·1645140
50	5·3677590	105	0·5547310	50	5·3637325	105	0·8806901
51	5·3594966	106	0·2412705	51	5·3566343	106	0·5815875
52	5·3506256	107	$\bar{1}$·9116657	52	5·3493358	107	0·2666332
53	5·3413096	108	$\bar{1}$·5653419	53	5·3418264	108	$\bar{1}$·9352434
54	5·3315317	109	$\bar{1}$·2017142	54	5·3340949	109	$\bar{1}$·5868233

NOTE.—The above logarithms of the fundamental column of the English Life-table were computed and stereoglyphed in papier mâché, by Scheutz's calculating-machine, at the General Register Office.

II.—OCEAN TELEGRAPHY, PRESENT AND PROSPECTIVE.

On the 8th of November, 1861, Messrs. Slidell and Mason, Confederate Commissioners, were forcibly removed by Commodore Wilkes, a Federal officer, from the British mail-steamer "Trent." This proceeding was a *casus belli*, according to the law of nations. The news reached London on the 27th of the same month; and on the 29th a cabinet council resolved on demanding the release of the commissioners, as the only way of avoiding hostilities. On December 2nd, despatches to this effect left England; they reached Halifax on the 15th, and Washington on the 19th. The United States Government yielded to the demand, and gave up the commissioners on the 27th. The news of this surrender left New York on the 28th, and reached Cork on the 8th of January, 1862. In the interval troops were sent out to Canada, to be prepared for war; and enormous expenses were incurred for military and naval preparations. It was felt at the time, and has often been acknowledged since, that if a transatlantic submarine telegraph had been at work, millions of money might have been saved; seeing that the commerce of the country was seriously interrupted during this period of suspense, irrespective of the direct cost of war-like preparations. Between the date of the offence, and the arrival of the news that reparation had been made, exactly two calendar months elapsed; if an electric messenger had reduced this interval to a week, a fortnight, or even a month, the saving of money and anxiety would have been immense.

This was only one, although the most momentous, of many occurrences which have deeply implanted in the public mind a conviction of the high political and commercial importance of submarine telegraphy, especially across that ocean which separates two nations so intimately associated as the United Kingdom and the United States.

In the 'Companion' for 1858, an account was given of the steps by which land telegraphy had been followed by sea telegraphy—the bold idea of conveying an electric wire through the water; together with an outline of the systems established down to the autumn of 1857, and of the mode of working. In now describing the important extensions during the last eight years, the earlier operations will, in this paper, only be so far noticed as to supply the necessary connecting links between the past and present. We may as well mention at once, that it was stated at the recent Birmingham meeting of the British Association, that of 14,000 miles of submarine cable submerged to the present time, barely 5,000 miles are now at work; nevertheless, every mile of unsuccessful cable is useful, as a link in the series of experiments by which success is ultimately reached.

Discoveries and Inventions in Ocean Telegraphy.

Every part of the scientific theory of electro-telegraphy has been made the subject of experiment and discussion during several years past. The results even now are in many instances only tentative and provisional.

The *Conductor*, the metallic wire along which the electric impulse is to be conveyed, giving rise to those telegrams from distant parts, which are to most persons such a mystery, is, of course, the chief element in a submarine telegraph cable. It seems as if copper is likely to take its place permanently, as the best metal for this purpose. Various alloys have been made the subject of experiment, and the good qualities of each tabulated; but copper is preferred to all others. If the cable is to be a single line, sending only one message at a time, one copper conductor only occupies the centre: but if there are to be two or more conductors, for sending two or more messages at once, they must be separated by insulating compounds, in order that the electricity may not diverge laterally from one to another. In the long ocean cables there is usually only one conductor, because it is wished to lessen the weight and bulk as much as possible; but in the shorter cables, such as those which connect England with Ireland and with the Continent, there are sometimes as many as six conductors—as we shall see further on. There is not only this plurality of conductors in the cable, but there is in most cases a plurality of wires in each conductor. The opinions on this subject are very diverse. One electrician thinks that a plain, solid, copper wire makes the best conductor; another advocates a twisted coil, or strand of smaller wires, pressed close together; a third would place a glutinous composition between the centre and the circumscribing wires of this strand; a fourth prefers an arrangement of the component wires side by side, bound together at certain intervals but not twisted; a fifth alleges that the wires should be united by solder; a sixth would coat the copper with brass; while a seventh would employ, instead of wires, three or four narrow strips of copper, rolled or drawn into the form of a hollow tube. It is contended, on the one hand, that a strand is better than a single wire, because the rupture of one component wire of the strand would not necessarily destroy the conduction; while, on the other hand, it is contended that a strand is bad, because if one of the small wires break, the sharp ends might penetrate the insulating substance. The balance of opinion, at present, is in favour of a strand, consisting of six small wires twisted round a seventh in the centre. Electricians have clearly ascertained that the copper should be as pure, mechanically and chemically, as possible, and that the wire should be drawn equable in thickness and solidity throughout. It is believed that the Atlantic Cable of 1858 failed through inequality of manufacture, rather than from any other cause. As to the thickness of the conductor, that is made dependent on the amount of work required from it, which in turn is dependent on the length of the cable, the force of the current employed, and the rate of telegraphing. One of the marvels of electro-telegraphy is, that a return wire is not needed; the current travels back again by its own natural tendency. To convey a telegram, there must be a complete circuit of the current, but a conductor in one direction only is needed for this.

The *Insulator* is the next most important part of a telegraphic cable, and one on which numberless experiments have been made. If a copper conductor were simply passed through the water, no

amount of electric force would drive a telegram through it, because the impulse would be dissipated on all sides in the water, and be lost. The conductor requires to be insulated, hemmed in on all sides, by some substance which will forbid the lateral escape of the electricity. Of all substances hitherto discovered, gutta-percha and india-rubber are found to be best suited for this purpose; their softness, when heated, enables them to be applied closely to the conductor; and their insulating property is very great. Two sets of manufacturers, with two sets of scientific men to support them, have been fighting, and are still fighting, the battle of india-rubber against gutta-percha. For india-rubber is claimed high insulating power, with a resistance to high temperatures, and a low specific induction; while gutta-percha is credited with a greater facility of application to the conductor, less tendency to oxidize in the air, less liability to accidental injury, less clamminess when handled, and a greater power of resisting water. So tough is gutta-percha, that when the Anglo-Belgian cable was broken by an anchor a few years ago, while the copper conductor and the outer covering were completely severed, the gutta-percha held intact, but drawn out from the thickness of maccaroni to that of vermicelli. The modification of india-rubber, called vulcanized, seems to possess certain properties midway between those of pure india-rubber and gutta-percha. Some electricians advocate the use of a double layer, gutta-percha outside india-rubber: believing that the former will shrink upon the latter, and render it more compact and solid. At the recent Birmingham meeting of the British Association (1865), a paper was read in strong advocacy of the use of india-rubber as a telegraphic insulator; and redoubled efforts are certainly being made to improve the manufacture in every possible way; but, judging from the present practice of telegraph companies, gutta-percha wins the day. It is well to remark, however, that Mr. Ghislin, who displayed some curious articles manufactured from the large seaweed called *laminaria buccinalis*, at the International Exhibition in 1862, claims for that substance all the qualities needful for insulation—a good insulating power, facility of combining either with gutta-percha or india-rubber, and great power of resisting the action of its native element, salt water. In applying gutta-percha around the conductor, the thickness is made to depend on the amount of work to be done. Most usually, the gutta-percha is not applied in one layer, but in three or four, alternately with three or four coatings of some glutinous compound. One such compound, called Chatterton's, consists of gutta-percha dissolved in Stockholm tar; another, Bright and Clark's compound, consists of asphalte, tar, and silica, laid on at a temperature of 300° F.; while another, called Wray's, consists of gutta-percha, india-rubber, shellac, and silica. On the scientific principle that "nothing is stronger than its weakest part," a single defective spot in the insulation will ruin a cable, however good in other respects: hence strenuous attempts are made to obtain uniformity in quality and thickness, in the insulating substance. As it has now been ascertained most conclusively that deep immersion in sea-water improves the insulating properties both of gutta-percha and india-rubber, electrical engineers have been

relieved from much doubt that used to oppress them; they are not now afraid of any ocean depths, so far as insulation is concerned.

The *Sheath* is the next matter for consideration. It is not so important as the conductor, which conveys the current, nor as the insulator, which keeps the current in the right road: but it is necessary as a source of strength and protection. Electricians soon found that it would not do to let the gutta-percha or india-rubber insulator be exposed to friction, straining, or the attacks of marine animals. The suggestions for the particular mode of building up a cable, are many and remarkable. A coil of seven copper wires for the conductor, insulated by gutta-percha, and sheathed by layers of tarred yarn, steel wires, and plaited hemp; a coil of hemp yarn around the gutta-percha, protected by twelve steel wires bound with yarns of tarred hemp; eight or ten steel wires between the conductor and the insulator, with jute plaited spirally round the outside; the same, with india-rubber canvas instead of jute; a sheath of steel wires, with a double wrapper of cocoa-nut fibre and india-rubber canvas; a sheath of fifty-two thin steel wires, bound round with tapes dipped in shellac and marine glue; a double layer of canvas outside the steel wires, with a cement of liquid india-rubber between them; tapes, saturated with preservative composition, bound spirally either inside or outside the steel wires; a sheath of strips of metal, bound spirally, and overlapping each other—all have been proposed, and many of them adopted. One fact ascertained by experience is, that a hempen exterior is likely to be eaten away by marine animals. Most existing cables, as we shall see presently, are protected on the outside with steel or iron wires, accompanied by some protective cement or padding. A controversy is going on between the advocates of light and heavy cables. Some experimenters assert that, below a certain depth of water, an iron wire sheath is not needed; that it becomes an evil by reason of its weight, bulk, cost of freight, difficulty of paying out, and difficulty of repair. Others assert that you cannot pay out a cable from a ship unless it be strong; and that unless it has a substantial exterior, rocks at the bottom of the sea would infallibly cut it. Mr. Allan contends that the strength should rather be on the inside than the outside, in deep water, to enable it to bear the principal strain; and on this ground he advocates the construction of a cable in which the steel wires are within the insulator. As this theory is now being made the basis of a new Telegraph Company, we must notice it a little more fully. His cable consists of a copper conductor, protected by a spiral coating of small steel wires; and the gutta-percha, *outside* the steel wires instead of inside, is sheathed with a wrapper of tarred hempen tape. Mr. Allan claims that, with a conductivity not less than that of the existing (but at present abortive) Atlantic Cable, a breaking weight as great, and an insulation greater, his cable will occupy only one-fourth as much bulk in the ship that takes it out, will be only one-fourth as heavy, will be much cheaper to construct and cheaper to submerge, will be less liable to accident, and will be more easily repaired if accident occurs. The transmission of messages is said by him to be possible in a shorter time, or rather a greater number of words transmitted in a given time, by his than by

the ordinary cable. Without anticipating details to be given in future pages, it will suffice to say here that the majority of telegraphic engineers do not agree with Mr. Allan's views, in regard to ocean cables.

The *Submersion* is a nautical and mechanical process, rather than electrical, but it has not been less subject to controversy and experiment. Whether to take out the cable in one ship or two, depends chiefly on the availability of a single ship large enough for the purpose. When two ships take out a cable between them, half in each, it is not yet decided whether the best plan is to begin at one end of the route, and work on to the other; or to begin at both ends, and work on to a junction in the middle; or to start in mid-ocean, and pay out in both directions at once. Under any system, the paying out is a delicate and difficult operation: four things having to be kept constantly in view in determining the rate of progress—*i. e.*, the momentum of the ship, the weight of the cable, the power of the wind, and the drift of the current. It is not merely dropping a heavy substance overboard, and allowing it to sink to the bottom in a few minutes. Some parts of the ocean are so profoundly deep, that very patient attention is needed to determine the precise moment when the heavy substance reaches the bottom. One experienced navigator says that a sounding-line with 96 lbs. weight at the end takes 50 minutes to descend through two miles depth of water; while another states that a cod-line, with 90 lbs. weight at the end, will descend 2,000 fathoms in 42 minutes—two statements agreeing pretty well with each other.

The *Testing* is a process which is going on all through the manufacture and the submersion. Electric currents are passed through the cable during almost every stage of its history—the making, the coiling, the shipping, the voyage, the uncoiling, the paying-out—to ascertain that the insulation is perfect. These currents are made to vary as much as possible in intensity and mode of application, to see that the cable "speaks" properly. Professor W. Thomson has invented an exquisite galvanometer, weighing only a grain or two, which detects the most minute currents passing through a cable, by measuring the deflection of a ray of light reflected from a minute mirror, attached to a minute magnet; when this ray of light varies in its travels along a graduated arc, it tells of a good or bad state of insulation in the cable. To test how far off a fault may be, when one is found, is a process calling for a very refined application of electrical science. In order that those concerned may understand each other on these matters, certain standards have been established, by which conductibility and insularity may be expressed in numerical quantities.

As to the national aspects of ocean telegraphy, nearly all the principal governments have recognised the expediency of aiding these enterprises, either by conducting the whole operations at the cost of the State, or by guaranteeing a minimum dividend on the capital subscribed by shareholders.

It is useless to quarrel about a word when it has come into familiar use, else we might object to the word *cable*, as conveying a very

erroneous idea of the thing denoted. When the principal submarine cables come to be described, it will be seen that they are only small ropes, sometimes mere cords.

Geographical Distribution of Submarine Cables.

The best mode of obtaining a general idea of the progress of ocean telegraphy, in relation to the length, thickness, material, construction, submersion, and present condition, of the cables hitherto laid down, or likely to be soon laid down, will be by tracing them into the principal seas and oceans in succession.

Cables in the British and Adjacent Seas.—These seas separate the British islands one from another, and Great Britain from Norway, Denmark, Schleswig, Holstein, Hanover, Holland, Belgium, and France; and it will be seen that we have spun a good many threads, tied a good many knots, to attach ourselves to these neighbours. It was in 1850 that submarine telegraphy commenced, by the laying down of a cable from Dover to Calais, 26 miles; this cable was a mere cord, a wire simply covered with gutta-percha, and weighing only 4 cwt. to the mile; it spoke for one day and was then silent for ever. Next year the company submerged a very heavy cable, with four conductors, and a strong iron sheath outside; it has worked almost continuously ever since, and has rendered an immense amount of useful service. In 1852 a cable with an india-rubber insulator was submerged in the small breadth of sea between Hurst Castle and the Isle of Wight; another, with india-rubber between the conductor and the gutta-percha, and hemp instead of iron wire for a sheath, from Holyhead to Howth; and another, 17 miles long, from Portpatrick to Donaghadee. In 1853 and the following year, four cables were successively laid between England and Holland, 120 miles; they were disabled one after another, and have been replaced by others stronger and better. In 1853 were also laid a second Portpatrick and Donaghadee cable, weighing no less than six tons to the mile, and having six conductors (the former one having failed); a stout cable with six conductors from Dover to Ostend, 80 miles; a cable across the Firth of Forth, 5 miles; and a cable of 18 miles across the Belt, connecting two of the Danish islands. Next, in 1854, Sweden and Denmark were connected by a cable, across the narrow sea of twelve miles that separates them; and two new cables, one a failure, and the other a success, each weighing about two tons to the mile, were laid from Holyhead to Howth. In 1857 a cable was laid down from Weymouth to the Channel Islands, 102 miles; it required constant repairing, and ceased to work after two or three years. In 1858 the German Ocean was spanned twice, viz., with a cable from Suffolk to Holland, 140 miles long, and very heavy: and one from Suffolk to Hanover, 280 miles long, but much slighter. The year 1859 witnessed the submersion of a cable 364 miles long, and carrying three conductors, from England to Heligoland and Denmark; one from Whitehaven to the Isle of Man, 36 miles (the first cable in which the outer iron wires were protected against rust by hemp and bitumen); one from Folkestone to Boulogne, with six conductors;

one from Jersey to the French coast, 21 miles; and one from Sweden to Gothland, 64 miles. This busy year was followed, in 1860, by the laying down of two stout cables across the Great Belt. In 1861 was submerged the Beachy Head and Dieppe cable, 80 miles, with six conductors. Among the operations of 1862, was the submersion of the Pembroke and Wexford cable, 63 miles, establishing a much-needed telegraphic communication between the south-west of Britain and the south-east of Ireland; this is one of the cables in which the outer iron wires are protected from rust by hemp and bitumen. There was also laid the Lowestoft and Zandvoorst cable, 130 miles, with four conductors. The shore ends of this cable, weighing the formidable amount of fifteen and a half tons to the mile, were protected by hemp and bitumen. In submerging the cable itself, fishing-boats were moored at intervals of five miles, and the cable was lowered from the line thus formed, whereby the amount of slack or deviation was much lessened.

By the above-noticed cables, and others of minor importance, the land telegraphic wires of Britain and Ireland have been connected with each other, and with those of the Continent of Europe, at many different points.

Mediterranean Cables (*European*).—The Mediterranean cables may conveniently be placed in two groups—those which start from the European coasts, and extend either to other parts of the coast, or to a neighbouring island; and those which finish the spanning of the Great Sea, by touching the African shore.

The year 1854 witnessed the first laying down of a submarine cable in this region. It stretched from Spezzia to Corsica, 110 miles, passing through a sea 300 fathoms deep; it worked well for ten years, and has only recently been replaced by a new one. Another cable, weighing, like it, seven and a half tons to the mile, was submerged from Corsica to Sardinia, a distance of only 10 miles. The next year, 1855, was that in which the two remarkable war telegraphs were submerged in the Black Sea, from Varna to Balaklava (350 miles), and from Balaklava to Eupatoria (50 miles); they were not thicker than a cord, a single wire covered with a single layer of gutta-percha; yet they rendered eminent service before the war was ended, and paid their expenses many times over.* There was also, in this year, a cable submerged from the southern point of Italy, the 'Toe of the Boot,' to Sicily, a distance of only 5 miles. In 1857 were laid down a cable from Varna to Constantinople, 170 miles, which failed in a few years through weakness; another from Sardinia to Malta, 350 miles; and a third from Malta to Corfu, also 350 miles, and passing depths reaching at one place to 1,300 fathoms. These last two cables would have effected much towards spanning the Mediterranean, but they were too fragile for their work; one of

* In the recent American civil war, the Federals brought land-telegraphs to bear upon their military operations. Lances were stuck upright in the ground for posts, and wires carried from one to another. The officers could thus set up a temporary telegraph nearly as rapidly as a man can walk. Telegrams were sent through distances varying from a mile or less up to twenty miles. At the first battle of Fredericksburg, the manœuvres for the battle itself were in this way directed, telegraphic messages being sent from head-quarters through wires hastily set up.

them broke towards the end of 1858, was repaired early in 1859, broke again, and was then abandoned—putting an end to a subsidy for twenty-five years on a capital of 120,000*l*. In 1859, after the laying of a second cable from Italy to Sicily, one was submerged from Sicily to Malta, 60 miles, and passing over a comparatively shallow sea. Further east, there were submerged a thin cable of 50 miles across the Adriatic, from Otranto to Albania; and a series of equally thin cables, 560 miles in all, to connect Constantinople, Athens, Candia, some of the islands of the Archipelago, and Smyrna. These, like so many of their precursors, had to be abandoned one by one, through failure in working. Coming down to 1861, we find Spain sending out a series of three cables, 380 miles in all, to connect the islands of Majorca, Minorca, and Ivica, with each other, and with the mainland; and France, a cable of 195 miles from Toulon to Corsica, across a sea attaining a depth of 1,500 fathoms; but this, like the Spanish cables, was too weak for its work. They were followed in 1863 by a cable from Sardinia to Sicily, 246 miles, completing the links which connected France, Corsica, Italy, Sardinia, Sicily, and Malta—completing, that is, so long as the cables remained intact, which was in some cases only for a very short time. A second cable from Otranto to Albania, in 1864, to replace the former one, completes the list of north Mediterranean enterprises, which, it will be seen, have been full of mishaps.

Mediterranean Cables (*African*).—To connect Egypt and India with England, to connect Algeria with France—these have been the primary motives for the proceedings of telegraph electricians in the Mediterranean. We have seen what has been done or attempted on the European side; and we now cross to the African side. In 1855 an attempt was made to submerge a cable from Sardinia to Algeria; but it came to misfortune in the laying, in a profound depth of 1,600 fathoms (a mile and three-quarters). In 1857 the French renewed their former attempt to submerge a cable of 150 miles, with four conducting wires, from Cagliari in Sardinia to Bona in Algeria; the submersion was achieved, but the external iron wires rusted in the course of two or three years, and the cable became useless. In 1859 Spain threw a light submarine cable across the Straits of Gibraltar, 25 miles, from Tarifa in Europe to Ceuta in Africa—too light for its work, as was soon shown. At the other end of the Mediterranean a more important attempt was made in the same year to connect the two continents, by submerging a cable from Candia to Alexandria. Indeed, there were two attempts—first with a hemp-covered cable, and then with one sheathed in iron wire; but both alike ruptured, and Europe had to wait some time longer before she could speak to Egypt with the lightning-voice. In 1860 another work was effected by the French, to connect Europe with Algeria; or rather, a cable was laid from Algeria to Minorca in 1860, and another from Minorca to Port Vendres in France in 1861. The whole distance was 520 miles; but, more disaster: the hempen exterior was attacked by marine animals, and the insulation of the cable destroyed in a year or two. Another attempt has since been made by the French Government. They arranged with Messrs.

Halske and Siemens for a cable, 250 miles long, from Oran in Algeria to Carthagena in Spain. The cable was made four-tenths of an inch in diameter, with a conductor of three coiled wires, and a sheath of copper ribbons overlapping like the scales of ancient armour, and laid upon a bedding of gutta-percha and hemp. France has been particularly unfortunate in her submarine cables; this, like nearly all the others, failed after a brief period. The most important work yet achieved in these regions is the Malta and Alexandria cable. The British Government had, in 1859, resolved on laying down a cable from Falmouth to Gibraltar; but they changed its destination, first to Rangoon and Singapore, and then to Malta and Alexandria. The cable consists of a conductor of seven copper wires (six around one), of 400 lbs. to the mile; an insulator of three layers of gutta-percha alternating with three of Chatterton's compound, weighing also 400 lbs. to the mile; and a sheath of eighteen iron wires, coiling round a layer of hemp saturated with tar. The whole weight is rather under two tons per mile. The submersion took place in 1861. The total length of 1,530 miles is broken up into three portions, by giving the cable intermediate resting points at Tripoli and Bengazi, in Africa. One advantage in favour of this route is the comparative shallowness of the water, the deepest soundings being 420 fathoms. This was the first cable sent out under water, in tanks provided for that purpose in the cable-ship; and great care was taken with the electrical testing. Although often interrupted, and often under repair, this Malta and Alexandria telegraph is still the one through which we mainly communicate with Alexandria and Suez, and its usefulness is certainly very great. There are lines, it is true, creeping round the eastern margin of the Mediterranean; but for Reuter's telegrams from the East we are mainly dependent on the Malta and Alexandria cable. As an example, the fact may be mentioned that, on the morning of September 21st, 1865, the 'Candia' entered Suez Harbour with the China and Calcutta mails; the fact was recorded in the London newspapers *on the same evening*. The connection between the British Government and this important cable is rather peculiar. The cable has cost about 450,000*l*. (core, 135,000*l*.; sheath, 125,000*l*.; freight, laying, &c., 190,000*l*.); and this cost has been borne, three-fifths by the Home Government, and two-fifths by the India Government. The same persons who were paid for constructing and laying it are now paid for working it, under a lease. It is open for use by commercial firms and private individuals, as well as by Government, at the same tariff; but Government telegrams have precedence. The tariff of charges is laid down in the lease, and is such as to average about 2*l*. per message or telegram. The gross receipts are divided in certain ratios between lessors and lessees; and the cable is to be handed over to the Government in good working order, at the expiration of the lease.

Red Sea and Persian Gulf Cables.—The distance from Suez to Aden, along the Red Sea, is about 1,350 miles: and from Aden to Kurrachee (the extreme western point of India, near the westernmost mouth of the Indus), 1,700 miles. If this gap were filled up, together with a land wire from Alexandria to Suez, England would be tele-

graphically connected with the whole of her Indian possessions, seeing that there are already land wires which connect Kurrachee with Moultan, Lahore, Bombay, Delhi, Calcutta, Madras, Ceylon, and Rangoon. No wonder that this enterprise should have engaged much public attention. About the year 1857, Mr. Gisborne obtained from the Turkish Government a concession for laying down so much of a Red Sea and India telegraph as would pass through Turkish territories and waters; he sold his concession to a joint-stock company; and this company received from the British Government, in 1858, a guarantee of four and a half per cent. on 800,000*l.*, for fifty years, contingent on the successful working of the telegraph. Messrs. Newall made nearly 4,000 miles of cable. It had a conductor of seven wires, weighing 180lbs. to the mile; an insulator of four layers of gutta-percha, 212lbs. to the mile; and a sheath of eighteen iron wires coiled round a layer of hemp. The weight was 21 cwts. to the mile, and the diameter six-tenths of an inch. The distance, 3,042 miles,* was in six lengths, of 255, 474, 629, 718, 486, and 480 miles, respectively; starting from Suez, and ending at Kurrachee, the cable had five intervening resting-points at Cosseir, Suakin, Aden, Hallain, and Muscat. It was an unfortunate speculation. Faults appeared everywhere in the cable; repairs were very frequent, and the whole distance did not 'speak' at once for more than a few hours. The enterprise has entailed heavy loss on all concerned in it. Sir Charles Bright and Mr. Latimer Clark recommend, that if a Red Sea telegraph should be again attempted, it should be carried down Egypt as far as possible by land-wires, in order to avoid the coral reefs of the Red Sea, which are found to be very perilous to cables, cutting them asunder like bits of cord. The failure of this enterprise led to the formation of a scheme for carrying land-wires through Asiatic Turkey, and connecting them with a cable running down the Persian Gulf, and so to India. The Government of India commissioned Lieutenant-Colonel Patrick Stewart to examine the route in 1861–2; and then ordered the construction of a cable by Mr. Henley, under the superintendence of Sir Charles Bright and Mr. Latimer Clark. The cable was very scrupulously made. The conductor consists of four slips of copper, bent round and combined into a tube one-eighth of an inch in diameter; and the insulator consists of four layers of gutta-percha, alternating with four of Chatterton's Compound. Twelve thick strands of saturated hemp were bound round the insulator, then twelve galvanized iron wires, then two wrappings of tarred hemp-yarn, and then two coatings of Bright and Clark's Composition. The whole cable was finally rolled smooth, to be as firm and solid as possible. It weighs three and a half tons to the mile, and is about equal in diameter to a new penny-piece. By the autumn of 1863 there were 1,250 miles of this cable ready to take out. The land-wires were to go from Constanti-

* Many of the statements of lengths and distances in submarine telegraphy must be received with caution. Some of the measurements are given in statute miles, others in nautical miles; some are traced along the shortest *direct* route, others along the shortest *practicable* route; some allow for slack in "paying out," others do not; and it is not always easy to tell which meaning is intended to be conveyed. And so also as to size; one of the Parliamentary Blue Books is full of blunders, owing to not discriminating between the *diameter* and the *circumference* of cables.

nople, *viâ* Scutari, Diabekr, Mosul, and Bagdad, to Shat-el-Arab, at the junction of the Euphrates with the Tigris; and then the cable, in three sections, was to be submerged from Shat-el-Arab to Bushire on the Persian Gulf, Mussendom on the Arab coast, and Guadur on the Beloochistan coast; from which last-mentioned place a land-wire would run on to Kurrachee, and so to India. (At the European end the Turkish Government have laid down two lines across the Bosphorus, from Constantinople to Scutari, a wire *over* the water, and a cable *under* the water.) The shore portions of the cable were strengthened to eight tons per mile. Colonel Stewart went out in 1863 to superintend the arrangements; and the cables, weighing 5,000 tons in all, and conveyed in six ships, reached Bombay early in 1864. The first section, from Guadur to Mussendom, was submerged in February; the second in March; and the third in April. The last shore end could be landed at the mouth of the Tigris only by the engineers and their assistants wading through four miles of slimy mud, and dragging the cable with them. Meanwhile Colonel Stewart had the mortification of finding that, through wranglings between the Turks and Arabs, the land wire up to Bagdad was only half completed. He went to Constantinople, and there battled against difficulties until January, 1865, when he sank under the pressure of incessant mental and bodily labour—a brilliant young officer cut off in his prime. The Turks have now, however, finished their land line; and an alternative line has been formed by way of Bagdad, Teheran, Ispahan, and Shiraz, to the Persian Gulf; but so much carelessness and laziness exist in these Asiatic regions, that the Persian Gulf cables have not yet been able to render that amount of service which we may reasonably expect from their excellent construction, submerged, too, as they are, in water seldom more than fifty fathoms deep. In June, 1865, the Kurrachee Chamber of Commerce recorded a protest against the management of the line, especially the land wires between that port and Bombay. There were sometimes two hundred telegrams at once, waiting at Kurrachee for transmission to Bombay. At the time when this sheet goes to press, the line is working, but fitfully; and sometimes a telegram takes ten days in reaching London from Bombay.

Various Projected Cables.—The Australian Colonies have long yearned for telegraphic communication with the mother country. As matters now stand, letters leave England for Australia on the 20th and 26th of the month, both mails going forward together from Alexandria. Say that the month is January. The mails are delivered in March, but frequently not early enough to anticipate the homeward mail, which starts from Sydney on the 22nd. Merchants, in such case, cannot reply to advices, nor the Colonial Government to despatches, until April 22nd; and those replies do not reach England till the latter half of June. Thus the interval from January to June may be, and often is, absorbed in obtaining an answer to a query or message. An answer by telegram instead of letters may be obtained in a shorter time, owing to the wires and cables existing between England and Alexandria. During the brief period when portions of the Red Sea Cable spoke, the time was still further reduced; and the

Australians desire to obtain a larger amount of this kind of benefit. Assuming that telegraphic communication will be successfully worked, by some route or other, between England and India, examinations are being made into the practicability of extending that communication to Australia. From Rangoon, the present terminus of the India wires, to Singapore, along the Malay peninsula, is about 1,100 miles, available as a cable route. From Singapore the Dutch have submerged a cable of 1,250 miles to Java. The nearest points of Java and Australia are less than 1,000 miles apart; but if the Island of Copang were utilised, the distance, though increased, would be bridged by two cables of moderate dimensions. Australia thus reached at any point, land wires might do the rest, or else coast cables from the north to the east sides of the mighty island; for Brisbane, Sydney, Melbourne, and Adelaide, the capitals of four of the principal colonies, are already united by land wires. Two other cables, 1,500 miles from Singapore to Manilla, and 650 from Manilla to Hong Kong, would bring China and the Philippine Islands into communication with Australia, India, and Europe. The different governments of Australia are seriously debating this important work, so far as the Java and Australia cable is concerned.

The West Indies, in like manner, have their submarine cables yet to look forward to. A project was started a few years ago, for three lines of telegraph branching out from Jamaica. One of these, according to the plan, would extend to Florida on the mainland of North America, about 1,060 miles, by way of Key West, Havannah, and St. Jago de Cuba; another, to Demerara on the mainland of South America, about 1,940 miles, by way of St. Domingo, Porto Rico, St. Thomas, St. Kitts, Antigua, Guadaloupe, Dominica, Martinique, St. Lucia, St. Vincent, Grenada, Barbadoes, Tobago, and Trinidad; and another to the Isthmus of Panama, 590 miles, by way of Colon. Of the whole distance of 3,590 miles, 3,020 would be submerged cable and 570 land wires. The West India Islands would in this way be tied to the mainland of America at three points, and to the land wires which are or may hereafter be established there. Nothing has yet been done, however, to give vitality to this scheme; for the West Indies are not a favourite field for commercial enterprise.

Another project, much more vast, though not involving much submerged cable, is that of the Asia-America telegraph. Conventions have already been signed, by which the land wires that traverse the United States in all directions are to be placed at Salt Lake, in the Mormon territory, in communication with a new line of wire. This new line will go through British Columbia and Russian America to Behring's Straits, which will be crossed by a cable 40 miles long. Passing thus into Asia, there will be a land line along the eastern or Pacific margin of Siberia to the mouth of the Amoor, where the Russians are establishing a naval station. From the Amoor there will be a line of wires no less than 6,000 miles long, through the chief towns of Siberia to Nishni Novgorod, Moscow, and St. Petersburg. A ship started from New York in the autumn of 1864, laden with wires, cables, and apparatus to finish the American and submarine portions; while the Russians are advancing with the Siberian portion. Should the

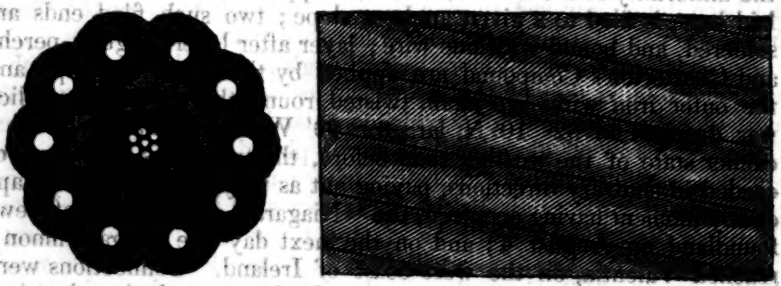
Atlantic Cable (presently to be noticed) be successfully laid in 1866, there will then be a veritable "girdle round the earth," almost as ethereal as Ariel's; and strange anomalies will spring up in connection with the familiar question, "What's o'clock?" Local time depends on the arrival of the sun on the meridian of a particular place; but as electricity does in a few seconds that which the earth's diurnal rotation requires many hours to accomplish, it will outstrip all the ordinary measurements of time. Even as matters now stand, a telegram was on one occasion sent from New York to San Francisco, 3,500 miles, by land wires, at 5 P.M.; the answer to it was timed 2.15 P.M. of the same day, nearly *three hours earlier!* But then the one telegram had been determined by New York local time, and the other by that of San Francisco.

No companies or engineers have yet been bold enough to plan a cable for spanning the vast Pacific, at any point southward of Behring's Straits.

The Atlantic Telegraph.

So important is the scheme for connecting Europe with America by telegraph; so great has been the interest excited by the attempts made to realise this scheme; so vast is the money value of the electric cables now lying useless at the bottom of the Atlantic; and so many-sided is the problem touching a proposed renewal of the attempt in 1866—that it will be desirable to treat this subject more fully than those connected with submarine cables in other parts of the world.

Section and Exterior of Atlantic Cable, 1857.



Section and Exterior of Atlantic Cable, 1865.

Six years, 1851 to 1856, were spent in getting over all the difficulties relating to the formation of an Atlantic Telegraph Company; but at length the Company was established, with a capital of 350,000*l.*, in shares of 1,000*l.* each, and a guarantee obtained from the English

and United States Governments equal to 8 per cent. on that amount. The cable was made, half by Messrs. Glass and Elliott and half by Messrs. Newall. The conductor (see wood-cut), six wires round one, weighed 107lb. per mile; the insulator, three layers of gutta-percha, was 261lb. per mile; the sheath consisted of eighteen strands of iron wire, each consisting of seven small wires, and was embedded in a layer of jute yarn, saturated with a solution of tar, pitch, beeswax, and boiled linseed oil. It weighed one ton per mile, and was six-tenths of an inch in diameter, much below that of a new farthing. Of the abortive attempt to lay this cable in 1857, an account was given in the "Companion" for 1858; suffice it to say that the cable snapped in two, that a few hundred miles of it were lost, and that the remainder was brought to Devonport, where it was kept during the winter in iron tanks.

On the 10th of June, 1858, the 'Wire Squadron,' as the sailors called it, sailed again. The 2,100 miles saved from the former enterprise, and 900 miles of new cable, made 3,000 miles with which to renew the attempt. On the 26th, after a stormy passage, the ships reached mid-ocean, the "Agamemnon" having one-half of the cable, the "Niagara" the other half, with the "Gorgon" and "Valorous" in attendance. When the two halves had been spliced, the spliced portion of the cable was dropped into the sea, and the ships parted company, the "Agamemnon" steaming eastward towards Ireland, and the "Niagara" westward towards Newfoundland, paying out the cable as they went. It was a more unlucky attempt than even the first. The cable broke on that very day, then on the 27th, and a third time on the 30th. It was mended twice, but the ships were so driven about in the hopeless attempt to mend it a third time, that the engineers became disheartened, and returned to Ireland.

The company resolved to lose no time in renewing the attempt. As there was still enough cable on board, the ships set forth again, and reached mid-ocean on July 20th. They spliced the ends of the two cables, and made them into one. This splicing is an important process, as on its efficiency depend the continuity of the current and the uniformity of the insulation. The copper wire of each end, being laid bare, is filed to a given angle or slope; two such filed ends are soldered, and bound with fine wire; layer after layer of gutta-percha and Chatterton's Compound are applied by the heat of a lamp; and the outer iron wires are again twisted round the core. The splice was dropped in 52° 10′ N. lat., 32° 29′ W. long. Favoured by a calmer state of the weather than before, the two ships steadily proceeded in contrary directions, paying out as they went. No mishaps of any moment having occurred, the "Niagara" came in sight of Newfoundland on August 4; and on the next day the "Agamemnon" reached Valentia, on the west coast of Ireland. Connections were speedily made with land wires on both shores, and the electrical apparatus was set to work. The joy was great, and well it might be. Queen Victoria and President Buchanan congratulated each other in telegrams which reached their destination in an hour or two. Her Majesty's message contained the words: "The Queen is convinced that the President will join with her in fervently hoping that the

electric cable, which now connects Great Britain with the United States, will prove an additional link between the two nations, whose friendship is founded upon their common interests and reciprocal esteem." The Lord Mayor of London and the Mayor of New York exchanged greetings; and so did the Atlantic Telegraph Company with the Newfoundland Telegraph Company. But the joy was destined to be of short duration. The cable spoke for twenty-five days, conveying 129 messages, containing 1,474 words, from England to America; and bringing back 271 messages, containing 2,885 words, from America to England. But these 4,359 words finished the work; the cable became weak in voice, and never spoke after September 1st; its insulation was ruined from some cause never ascertained.

The discomfiture was a serious one. A sum of 415,000*l*., represented by old and new shares, was gone; and as no one had any plan for utilising the unfortunate cable, new capital would be needed before anything further could be done. The difficulties of a long cable in a deep ocean being so great, many persons sought for a different route for crossing the Atlantic. One such, known as the North Atlantic route, would begin at Cape Wrath, at the northern extremity of Scotland, and would extend by Faroe Islands, Iceland, and Greenland, to Labrador. The advocates of this route made great efforts to gain popular favour for it. Captain Allan Young, in the "Fox," surveyed the whole route in 1860, and made out the distance to be not much greater than that from Valentia to Newfoundland, with the advantage of four intermediate stopping-places. But the difficulties are believed to be too many and too serious. The telegraphing would be tedious through so many stations; but this would be the least of the evils. The stations would be expensive to maintain, and would lead to little or no trade in such regions as those above-named; the icebergs of the Greenland seas would be formidable obstacles; the sources of accident would be numerous; the difficulties of repair would be great; and the cold during winter would paralyze the exertions of the persons employed. Another route suggested, not beset by so many difficulties, is the South Atlantic route; joining the land wires of Europe at Cadiz, and proceeding by way of the Canary Islands, Cape de Verd Islands, St. Paul and St. Ferdinand Islands, along the coast of Brazil to British Guiana, and thence by the West India Islands to the United States. This would touch the dominions of many different States, which would need to work in harmony one with another; and, moreover, neither the beginning nor the end of the cable would be on British ground—two objections, among others, which prevented the scheme from being listened to. Other schemes will have to be noticed in a later page. The old route, however, continued to find favour with those most intimately concerned. Captain Dayman, commissioned by the Admiralty to make soundings in the Atlantic, ascertained the non-existence of that particular shelf or submarine cliff which had before been believed in; he found that the bed of the ocean, in sinking from 300 to 2,000 fathoms, takes sixty miles to do it in, presenting a slope of 1 in 31—not much more than some of our railway gradients.

While the route was thus being discussed, the commercial part of the question underwent much examination. The advantages of Atlantic telegraphy appeared too overwhelming to allow the project to sleep. Even during the short time of working the cable, in 1858, it was considered that one single telegram saved the country 40,000*l.* An order had been sent to transport troops from Canada to India, during the later months of the Mutiny; news from India announced the quelling of the Mutiny; and a telegram, countermanding the embarkation of the troops, reached just in time—a letter by mail would have been too late. As a means of keeping up public interest in the subject, a telegraphic soirée was held at the house of Mr. J. Gurney, during which telegrams were exchanged with some of the most distant cities of Europe, the wires being carried into the drawing-room of the mansion. The Earl of Shaftesbury inquired after the health of the Emperor of Russia; and in four minutes St. Petersburg announced that his imperial Majesty was quite well.

After much negotiation, the government agreed, in 1859, to guarantee 8 per cent. for 25 years on a new capital of 600,000*l.* for a new and much-improved cable; and to pay 20,000*l.* a year for government despatches. Even this temptation did not at that time draw capitalists. A committee was, however, appointed, to inquire into all the circumstances connected with the making and laying of submarine cables, to make experiments, and to draw up a body of recommendations. Mr. Fairbairn, Professor Wheatstone, Captain Galton, Mr. Bidder, Mr. Latimer Clark, Mr. Edwin Clark, Mr. Varley, and Mr. Saward constituted this committee. In 1861 they presented a Report, in which they recommended that any new Atlantic cable should possess such and such qualities. (As their recommendations were ultimately adopted, we shall have an opportunity of noticing them presently.) After a few futile attempts had been made to raise the old cable, and others to entice public confidence (for it began now to be talked about that, out of 11,364 miles of submarine cable submerged, barely 3,000 miles were in actual working order), the directors, in 1863, submitted the whole question again to a scientific committee, who amplified the recommendations given by the former committee. In the early part of 1864 capitalists came forward to take the new shares, and contracts were entered into for the manufacture of the cable. The Gutta Percha Company, who made the core, and Messrs. Glass and Elliott, who made the sheath and finished the cable, combined to form the 'Telegraph Construction and Maintenance Company, Limited.'

In the summer of 1864 the manufacture commenced. In the centre of the cable is a copper wire, one-twentieth of an inch thick; this is coated with Chatterton's Compound, and around it six similar wires are tightly coiled to form the conductor, one-seventh of an inch thick, weighing 300 lbs. per mile. The insulator consists of four layers of gutta-percha, alternating with four of Chatterton's Compound, weighing 400 lbs. per mile. The core, thus far, is rather less than half an inch thick. While the core was thus being made at the City Road Works, it was subjected to every test that could be devised, to prove its mechanical and electrical efficiency; and then

it was transferred, in portions, to the East Greenwich Works to be sheathed. Outside the gutta-percha is a jacket of hemp tanned in a solution of catechu. Ten wires, about one-tenth of an inch diameter, made of Webster and Horsfall's homogeneous iron, separately covered with strands of tarred Manilla hemp, are coiled round to form the exterior. The Atlantic cable is hence a very complex structure. The weight is 35¾ cwts. per mile; the strength is equal to a breaking-strain of 7¾ tons; and the diameter is $1\frac{1}{10}$th inches, midway between that of a penny and a halfpenny in our present coinage. The cable was finished at the rate of 70 or 80 miles per week, during the autumn and early winter of 1864; and the whole quantity of 2,300 miles was ready by January, 1865. Meanwhile Mr. Henley was making about 35 miles of "shore-end" cable, 2½ inches in thickness, and weighing 20 tons per mile—by far the bulkiest ever made. There is a portion of main cable as a core or centre, and this is bound round with extra coils of hemp and iron wire. The intended purpose of this shore-end of cable was to resist the rubbing action of shingle and rocks at the two ends of the main cable. A tapering length of 500 yards was made to join the shore end to the main cable.

As the time for submerging the cable approached, an attempt was made by the inhabitants of Galway to show that that would be the best port of departure; but the company adhered to their former locality, Valentia, off the Kerry coast of Ireland. Instead of employing two ships of war, to take out the cable, the directors, finding that the grand but unfortunate "Great Eastern" was lying idle, agreed to charter it for the duty. Great alterations were necessary, to adapt her to the reception and safe bestowal of 4,000 tons of cable. Three enormous iron tanks were constructed, two of them 58 feet in diameter, the other 52 feet, and all of them 26 feet deep. When filled with cable and sea water they weighed 5,300 tons. At the stern was fitted up a paying-out machine, consisting of an elaborate system of V-wheels, friction wheels, vertical guides, iron channels, guide-wheels, riding wheels, break straps, levers, weights, drums, guide knives, driving pulleys, flange wheels, double purchase winches, dynamometers, graduated scales, and other apparatus, to ensure the smooth and safe passage of the cable from the tanks into the sea. The "Great Eastern," anchored in the Medway, received the cable in portions, conveyed down the Thames by the "Amethyst" and "Iris;" and this conveyance, with the splicing and coiling in the tanks, occupied from January to June. With cable, coals, and stores of all kinds, the mighty ship by this time bore 24,000 tons, and drew 33½ feet of water. The screw was to be used as the means of propulsion; but as it would not be safe to the cable that a greater speed than six miles an hour should be maintained while paying out, and as this would hardly give steerage-way to the ship for turning without drifting, the paddles were to be kept ready to assist.

At midsummer, just when all was ready for starting, the directors put forth a very sanguine report, asking the public for more money, and holding out hopes of an enormous return for it. The money was forthcoming, raised by shares having a preference (but not guaranteed) dividend of 8 per cent., in priority to any dividend that might at any

time be paid to the shareholders of 1857-8. The directors went so far as to prophecy that the 5*l.* shares would command 20*l.* by the end of July.

The arrangements made for defining the duties and responsibilities of the persons concerned in the enterprise were remarkably clear and systematic. The Atlantic Telegraph Company supplied the funds, chose the route, ordered the cable, and were to take it under their charge when set successfully to work. The Telegraph Construction and Maintenance Company were to make the cable and to submerge it, receiving payment that was to vary in amount according to the success of the making, submersion, and testing. The Great Ship Company lent their ship, officers, and men, on stipulated terms, to the Construction and Maintenance Company, by whom the responsibility of the submersion was assumed. The utmost caution was taken that there should be no clashing of authority, no disputed liability, when the critical time arrived. The working responsibility rested chiefly with M. de Sauty, Mr. Canning, and Mr. Clifford, the chief electrician, engineer, and mechanician of the Construction and Maintenance Company. The Atlantic Telegraph Company sent out Mr. Cyrus Field to represent the directors, Mr. Varley, their electrician, and Professor W. Thomson, a great authority on matters connected with electro-telegraphy; but all three were strictly enjoined to give advice only when it was requested, and in such form as to absolve *their* company from any liability in consequence of such advice. The Great Ship Company sent out Mr. Gooch, one of the directors, to represent them. The management of the "Great Eastern" was entrusted to Captain Anderson, one of the most experienced of the Cunard officers; assisted by Commander Moriarty, a naval officer whose services were lent by the Admiralty. As Captain Anderson had found, during many hundred voyages across the Atlantic, that July is usually a tranquil month on that ocean, it was resolved to make use of that period. The "Terrible" and the "Sphinx" were also lent to render any necessary aid. The "Great Eastern" was to take the main cable, the "Caroline" the thick shore end, to Valentia. The United States Government, being in ill-humour with England at that time, would neither subsidize the cable nor lend ships of war to assist in laying it.

The "Great Eastern" set forth on her momentous journey in the appointed month, though a week or two later than was intended; carrying a dead freight of immense value, and a living freight of 300 souls (200 crew and 100 other persons). The following diary, giving, in a condensed form, the principal facts entered more fully in the diaries published by Dr. W. H. Russell and Mr. Deane, will suffice to record the remarkable history of the attempt to submerge this valuable ocean cable in 1865:—

July 21. On the western coast of the island of Valentia is a small inlet called Foilhammurrum Bay, bounded by lofty slate cliffs, with a small patch of pebbly beach between the cliffs and the sea. A trough or channel was sunk in the beach and up the face of the cliff, to a telegraphic instrument-room. Twenty-five boats, ranged in a line, formed a sort of platform over which the shore-cable and the earth-cable were carefully hauled by 150 men from the "Caroline" to the shore,

and by 100 more men up the cliff. The earth-cable was merely to establish a good metallic conduction to the earth at or near the instrument-room.

July 22. The shore-cable having been properly placed in connection with the instrument-room, the "Caroline" was towed out twenty-six miles by the "Hawk," submerging this bulky cable as she went at the rate of two and a half miles an hour.

July 23. When the "Caroline" reached the "Great Eastern," anchored far out seaward, the delicate operation was performed of splicing the main-cable to the shore-cable. This done, and all being pronounced complete, telegrams exchanged with the shore, and visitors departed, the "Great Eastern" (carrying aloft the veritable flag which had waved over the "Agamemnon" in 1858), steamed slowly on her way across the Atlantic, submerging the cable as she went.

July 24. At three in the morning a sluggishness of signals being observed, the "Great Eastern" was stopped, the paying-out also stopped, and the hauling-in machinery put to work, in order to pick up so much of the cable as would show where the fault (whatever it might be) was located. The cable was then in about 400 fathoms water. The signals exchanged with the shore were very faint, and the electricians calculated that some obstruction existed at about ten or eleven miles from the ship.

July 25. At nine this morning, when ten miles of cable had, by a tedious and delicate operation, been drawn up out of the water, a piece of iron wire was seen, two inches long, rather crooked, sharp at one end, and about as thick as a straw, sticking half through the cable from the exterior to the copper conductor. By penetrating the gutta-percha coating, it had affected the insulation. Wonder and distrust how such a piece of wire came into such a place gave way to joy that the defect had been discovered. Another temporary interruption occurred on the same day; but, after proper cutting, splicing, and re-arranging, the "Great Eastern" steamed on, and by midnight had paid out 125 miles of cable.

July 26. At noon the ship was in lat. 52° 18′, long. 15° 10′, and had lowered 192 miles of cable. The soundings increased to 1750 fathoms, and the insulation of the wire improved as the depth of submersion increased; thereby confirming a hopeful anticipation already entertained.

July 27. The "Terrible" and the "Sphinx" suffered much in a stormy sea, but the "Great Eastern" bore on beautifully. Position at noon, lat. 52° 34′, long. 19° 1′; 346 miles of cable submerged. A steady speed was maintained of six knots an hour; a steady depth of 2,000 fathoms; and the cable struck the water at a distance of 213 feet from the stern of the ship. Signals continued to pass freely between the ship and the shore, and all was well.

July 28. The position at noon was lat. 52° 45′, long. 23° 18′; 476 miles from Valentia, and 532 miles of cable paid out. (Unless the ship progresses exactly in a straight line, and pays out exactly as rapidly as she moves, there will necessarily be a certain amount of "slack," or waste, which is always provided for.)

July 29. This was a day of disaster. The position at noon was

lat. 52° 38′, long. 27° 41′; 707 miles of cable paid out. At 1 p.m. the electrical tests denoted "dead earth," a total cessation of action in the cable; and the electricians pronounced the defect to be about three miles from the ship. Then ensued the disheartening and laborious process of hauling in. It had now to be effected in 2,000 fathoms of water—two miles and a quarter. The defective portion was hauled on board before the close of evening; and great uneasiness was felt at the strange way in which a piece of iron was found to be driven entirely through the cable, as if rather by design than accident.

July 30. After cutting, splicing, and re-launching, the operations commenced for re-immersing the mended portion. In paying out, the cable hung from the stern of the ship; in hauling in, it hung from the bow or head; and the alternate shifting to and fro, in a vessel nearly seven hundred feet long, was a work of much difficulty, to prevent the cable from being chafed or otherwise injured. By noon the ship had reached lat. 52° 30′, long. 28° 17′; 745 miles paid out.

July 31. Position at noon, lat. 52° 9′, long 31° 53′; 903 miles paid out. The after tank being now exhausted, the cable in the middle tank was placed in connection with the paying-out apparatus. The phrase "cable assassin" began to be heard in the ship; and the gentlemen on board formed themselves into a volunteer guard, to watch the cable and the tanks night and day. Some of them were aware that, two or three years ago, a case of mischievous injury to a cable had come before the courts, in which there was reason to believe that a workman had been bribed to injure the cable.

August 1. The ship proceeded smoothly on, the cable travelling from the middle tank to the stern along a kind of trough on the deck, well lighted at night. The reckoning at noon was lat. 51° 52′, long. 36° 3′.

August 2. This day was marked by the beginning of the great and final disaster. At six in the morning an electric sluggishness was observed, and the electricians pronounced the defect to be about six miles from the ship. The hauling-in process was necessary, and a third time was there found a piece of wire sticking in the cable. While the examination was going on the cable itself snapped, and the broken end went to the bottom in 2,000 fathoms of water. This sad disaster occurred in lat. 51° 25′, long. 39° 6′; 1,062 miles from Valentia, and with 1,197 miles of cable paid out. Then commenced one of the most remarkable operations of the whole enterprise—groping for the end of the cable at the bottom of the ocean. A cable had once been pulled up from a depth of 600 fathoms in the Mediterranean; but here the soundings were little short of two miles and a quarter. The "Great Eastern" steamed back to a particular point, and lowered a grapnel at the end of 2,500 fathoms of wire rope. The grapnel was a kind of five-fluked anchor, weighing 3 cwt., fitted to hook well round the cable if it should happily catch hold of it. The grapnel took two hours in descending. The great ship then moved very slowly, to enable the grapnel to drag along the ground, and pick up the cable by a kind of trawling. Night closed in while this was going on.

August 3. Early in the morning the operators believed that the grapnel had caught hold of the cable: they hauled in until half a mile

of the wire rope was inboard. Another disastor. The wire rope was in sections of 100 fathoms each, swivelled together; and one of the swivels giving way, rope, grapnel, and cable all went to the bottom together.

August 4. Not to be daunted by failure, the operators resolved on a second attempt to grapple the cable, having still enough wire rope on board. But the ship was drifting about, the weather was gloomy, the latitude and longitude could with difficulty be ascertained, and the whole day was spent in bringing the mighty ship to a position that was surmised to be over the cable.

August 5 & 6. Instead of actual grappling, the ship was on these two days moving about in various directions. A very large buoy, bearing a white inscription on a red ground, and carrying a red and white flag on a staff, had been floated on a raft of planks and empty casks, and moored by 2,500 fathoms of rope at the spot where the cable broke, in lat. 51° 28′, long. 38° 43′. But that buoy could not now be found, so thick was the weather.

August 7. A gleam of sunshine enabled Captain Anderson to define his latitude and longitude. He steamed to a point where a second grapnel was lowered, and dragged along the ocean bed as before. After six hours of dragging, an increased resistance was felt. All were convinced that the hapless cable had again been grappled in the profound depths of the ocean, and the hauling-in process was conducted during the evening and night.

August 8. With a strain of 60 to 80 cwt. the wire rope, grapnel, and cable were being once again raised; when, after a mile had been hauled in, another swivel or shackle gave way, and all went to the bottom, as it had done five days before. A second buoy was immediately floated, as nearly as could be ascertained, over the spot. This buoy bore a red, white, and blue flag, with a black ball over it; and its position was in lat. 51° 26′, long. 38° 56′.

August 9. Almost in despair, the operators resolved on one more attempt. This time, instead of relying on the defective hauling-in machinery, they used the mighty capstan of the mighty ship, after specially preparing it for the purpose. Currents and winds had been driving the ship so much about, that she got away thirty or forty miles from the second buoy. The day was spent in getting back to the proper position, and in adapting the capstan to its new duty.

August 10. This day was spent in setting a new grapnel to work, attached to a new length of rope; but night closed in without the grapnel succeeding in catching hold of the cable.

August 11. This was the last day of painful trial, the final yielding to the disaster. Not satisfied with the progress of the work, the operators drew up the grapnel to examine it, and found it defective. The stock of wire rope being diminished by all these mishaps, hempen rope was added to supplement it. Another grapnel was lowered, and another attempt made to catch the cable. Nearly a mile was hauled on board, when the hempen rope snapped, and for the fourth time the cable went to the bottom. All was over. There were not materials enough on board for a fifth attempt.

The "Terrible" steamed on to America, to announce the failure to

those who were anxiously waiting the result at Newfoundland; and the "Great Eastern," after lowering a third buoy, returned home, bringing with her a staff of indefatigable men who had nearly worked themselves to death during the incessant labours of twenty-one days. Nearly 1,200 miles of the cable now lie along the bed of the Atlantic Ocean; one end attached to the shore at Valentia; the other in lat. 51° 24', long. 38° 59', or thereabouts, submerged under 1,950 fathoms of water, and resting on a soft, oozy bottom. A length of 5,500 miles of cable altogether has been made for this great Atlantic enterprise, from 1857 to 1865; and nearly 4,000 miles of this have been swallowed up in the great ocean.

A million and a quarter sterling has been sunk, and grand hopes have been crushed. There was a brilliant writer, Dr. W. H. Russell, on board the "Great Eastern," to record in his own glowing language the proceedings day by day; there were lithographic presses and printers on board, to strike off a hundred copies or so of every day's record; there were envelopes kept ready, directed to the editors of seventy or eighty newspapers in England and America; there was a copy of each day's lithographed diary put into each envelope; and arrangements were made to forward them all to their destinations. As it turned out, however, the diary was one of disaster—met heroically, but still disaster.

Is the enterprise hopeless? Those best able to judge say it is not. Immediately after the return of the expedition, Mr. Fairbairn wrote to the newspapers, expressing great confidence. The requirements he considers to be—greater care in the manufacture of the cable, and a well-constructed pick-up machine. The paying-out machinery he pronounced to be admirable; and as to the "Great Eastern," it is specially suited for the duty, so happily fitted is it for complying with the requisite conditions. He advises that the noble fabric should be purchased for this kind of work in all oceans and most seas, and should undergo many minor improvements, having this end in view. Captain Anderson declares that his confidence is even greater now than before the disasters occurred, seeing that we can now measure their nature and extent. He considers all the difficulties to be of a nature that can be surmounted. He points out the usefulness of an auxiliary steam-engine, which, after paying out, could be reversed at once, so as to haul in the cable quickly after an accident. This would lessen the risk. As it was never anticipated that the cable would have to be hauled up from a depth of two or three miles, no apparatus really suited to this duty was supplied. But in future operations such a contingency should be provided for. As it would have taken two months to fit out the "Great Eastern" for another such voyage, Captain Anderson recommended the postponement to another year of any further attempt to submerge an Atlantic cable. He advised either the raising of the old cable, or the sinking of a new one, in 1866. He further recommended that any new cable for broad and deep seas should have either a layer of canvas or a coil of wire gauze between the core and the sheath, or else that the outer wires should each consist of a group of smaller wires; his object being that, if broken, the outer wires should be less able to penetrate the gutta percha, and

destroy the insulation. Other suggestions have poured in in great numbers. An old idea has been re-introduced, of suspending the cable in mid-ocean, with buoys above and mooring anchors below, as a means of facilitating the raising in case of needful repair; but this project has never met with much favour. Another suggestion is, that in attempting to raise the cable in 1866, it should be under-run from its beginning at the Irish coast, instead of being groped for at the remote end. Mr. Fairbairn, at the recent meeting of the British Association, advocated some such plan as this. Captain Selwyn has briefly sketched a mode of raising and submerging by the aid of a row of floating buoys; while another proposal is to wind in the whole cable again on board the great ship, beginning at Valentia, and then submerging *de novo*. A machinist has suggested that, to avoid the danger and difficulty of transferring the cable from the stern to the bow of the ship, whenever it is necessary to change from paying out to hauling in, it might be well to have the hauling-in apparatus at the stern, either the same as, or by the side of, the paying-out apparatus; and then, by a small additional screw, to enable the "Great Eastern" to travel slowly stern foremost, the pick-up might be managed much more quickly, and with less liability of damaging the cable by friction. Concerning the "cable assassin" suspicion, opinions are divided. There is still a painful doubt whether the bits of iron in the recent cable were introduced by design or not. By those who maintain the negative on this point, it is said, "The primary cause of all this loss and disappointment was the neglect of the mere housemaid's work of sweeping up a few chippings of steel wire which ought never to have been cut off in the vicinity of the coil, and which, when cut, should have been immediately removed. Each of the three incidents of injured insulation arose from the same cause—a piece of wire adhering probably in the first instance to the Manilla covering, and subsequently forced into the gutta-percha either by the heels of the men working on the coil, or by the compression round the drum on its way to the stern." As to the floating buoys, H.M.S. "Urgent," on September 6th, passed within a mile of the spots where two of them had been floated, according to ship's reckoning; but Captain Henderson and a very watchful crew saw nothing of either of them. It is hoped, however, that the recorded latitude and longitude will identify the real position of the end of the cable.

Most persons concerned seem to agree that, if once the Atlantic Cable succeeds, it will be impossible to send by it all the messages that merchants, newspapers, and governments will wish to send or receive by it. Two or more cables will be needed; and until they are laid down, the only way of preventing the one cable from being choked with telegrams would be by charging a very high tariff. Half-a-crown per word was modestly mentioned in the early days of the scheme; then 5*s*., then 10*s*., then 20*s*.; and Mr. Varley has even gone so far as to declare his belief that at 40*s*. per word, there would be as much work as one submarine cable across the Atlantic could possibly perform. It is on this basis that the theory of enormous profits has been supported.

While these discussions were going on concerning the old cable and its renewal, Mr. Allan's scheme was brought forward in a definite form. The submarine cable which goes by his name is lighter and less costly than the other; and he insists, with all the energy of an inventor and patentee, that it will also be less costly to work and to repair. There has been formed "Allan's Transatlantic Telegraph Company, Limited." The scheme embraces the submersion of a cable from Falmouth to Oporto (600 miles), one from Oporto to Flores, an Azores island (900 miles), and one from Flores to Halifax (1400 miles). Each section, according to the theory, would pay its own expenses; and the through messages between Falmouth and Halifax, connected as the cable would be with the land wires of both continents, are set down as prospectively the basis of an enormous profit. The length from Falmouth to Oporto only is to be laid in the first instance; and for this a capital of 150,000*l.* has been subscribed. This, it is assumed by the Company, "will fully demonstrate the practicability of safely submerging and working this form of cable in ocean depths." As it is, according to them, "perfectly certain" that one line will not suffice for the expected traffic from England to America, they plan another cable direct from Falmouth to Halifax by and by. At 600,000*l.* cost for the circuitous cable *viâ* Oporto and the Azores, and at a tariff of 4*l.* per average message (say 4*s.* per word for twenty words), the directors are bold enough to promise 43 per cent. dividend, after laying by 20 per cent. for a reserve fund. There is also a French company starting into activity, planning to carry a cable from Cape St. Vincent to the Canaries, then to Cape de Verd, and then down the West Coast of Africa, with stations at Senegal and other settlements; then to cross the Atlantic to Brazil; and then work upwards to the West India Islands and the United States. This enterprise is brought forward by M. Balestrini.

Returning to the Atlantic Company, all now depends on the raising of more capital. The three companies ("Atlantic," "Construction," and "Great Ship") are working well in harmony. They have agreed on the general basis of a new scheme, contingent on the subscription of the requisite fund. The Construction Company undertake both the raising of the old cable and the making of a new one; in order that, if all be well, both may be set to work at once. They have agreed to two sums for the extensive enterprise, 600,000*l.* if it succeeds, 500,000*l.* if it fails; and the difference between the two is so great, that they will have every inducement to throw their best energies into the matter. The Great Ship Company, on their part, will avail themselves of the experience lately acquired, as to any needful alteration in the ship. The ship, as before, will be chartered by the Construction Company, and not by the company to which the cables will ultimately belong. Scarcely any change is at present proposed in the cable itself; the operators look to improvements in other ways to remedy known defects. The conditional agreement depends on the raising of 500,000*l.* or 600,000*l.*, more money. As the Government refuse to enlarge their subsidy or mode of payment, the Company can only raise the new capital by offering a preferential

dividend of 12 per cent. upon it. The directors have made and published a calculation, in which they endeavour to show that, should two cables be successfully laid and set to work in the summer of 1866, and paid for on the terms of the new contract, a tariff of 5*s.* per word, at five words per minute through each cable, during sixteen hours in the day, allowing 50,000*l.* a year working expenses, would pay 12 per cent. on the capital now to be raised (600,000*l.*), 8 per cent. on the capital of 1864-5, 4 per cent. on the original capital of 1857-8, and an enormous bonus or extra dividend to *all* the shareholders, holding 2,000,000*l.* in all. The amount authorized to be raised by the directors is 800,000*l.*; but only 600,000*l.* of this is to be called up in reference to the immediate project for 1866. The new cable is now (November, 1865) being made.

Synopsis of Submarine Cables.

Nearly all the submarine cables hitherto laid down, or attempted, are described in the foregoing pages, arranged according to the oceans and seas to which they belong; the exceptions are only those of minor character. It may be useful, however, to give here a synopsis, derived partly from parliamentary papers and partly from other sources, arranged according to date, and comprising a few not hitherto named.

	Date of Laying.	Land Termini.	No. of Conducting Wires.	No. of Outside Wires.	Miles of Cable.	Miles of Conducting Wire.	Maximum Depth (fathoms).	Weight in Tons per Mile.
1	1850	Dover to Calais	1	None	25	25	30	..
2	1851	„ „	4	10	27	108	30	6
3	1852	Across the Solent	4	..	3	12	..	..
4	,,	Holyhead to Howth	1	10	75	75	70	0·45
5	,,	Portpatrick to Donaghadee	2	None	17	34	160	..
6	,,	„ „	5	12	15	75	160	4·8
7	1853	Denmark, across Belt	3	9	18	54	15	4
8	,,	Dover to Ostend	6	12	80	480	30	5½
9	,,	Across Frith of Forth	4	10	5	20	..	7
10	,,	Portpatrick to Donaghadee	6	12	25	150	160	6
11	1853							
12	to	Orfordness to Holland (4 similar Cables) each	1	10	120	120	30	1½
13								
14	1855							
15	1854	Portpatrick to Whitehead	6	12	27	162	150	6
16	,,	Sweden to Denmark	2	10	12	24	14	6
17	,,	Spezzia to Corsica	6	12	110	660	325	7½ to 8
18	,,	Corsica to Sardinia	6	12	10	60	20	7½ to 8
19	,,	Holyhead to Howth	1	10	75	75	70	0·45
20	,,	„ „	1	10	75	75	70	2
21	1855	Egypt (Nile?)	4	10	10	40	..	5½
22	,,	Italy to Sicily	1	10	5	5	27	5½
23	,,	Varna to Balaklava	1	None	355	355	300	0·1
24	,,	Balaklava to Eupatoria	1	12	..	..	..	..
25	,,	Sardinia to Africa	6	12	45	270	800	7½ to 8
26	,,	Cape Ray to Cape North	3	10	30	90	360	..
27	,,	Sardinia to Africa	3	10	160	480	1500	3·7
28	1856	Newfoundland to Cape Breton	1 Strand	12	85	85	360	2.5
29	,,	Prince Edward's Island to N. Brunswick	1 ,,	12	12	12	14	2.5

	Date of Laying.	Land Termini.	No. of Conducting Wires.	No. of Outside Wires.	Miles of Cable.	Miles of Conducting Wire.	Maximum Depth (fathoms).	Weight in Tons per Mile.
30	1857	Norway, across Fiords	1 Strand	10	49	49	300	2¼
31	,,	Across Mouth of Danube	1 ,,	12	3	3	..	1¼
32	,,	Across Rivers, India and Ceylon	1 ,,	12	60	60	45	2¼
33	,,	Varna to Constantinople	1	12	170	170	..	0·75
34	,,	Sardinia to Bona	4 Strands	18	150	600	1500	1·85
35	,,	Sardinia to Corfu	1 ,,	18	700	700	1000	0·9
36	1858	Italy to Sicily	1 ,,	10	8	8	60	5¼
37	,,	England to Holland	4	10	140	560	30	9¼
38	,,	England to Hanover	2 Strands	12	280	560	30	3
39	,,	Norway, across Fiords	1 Strand	10	16	16	300	2¼
40	,,	Dardanelles to Scio	1 ,,	16	115	115	200	0·89
41	,,	Scio to Syra	1 ,,	16	85	85	200	0·89
42	,,	England to Channel Islands	1 ,,	9	102	102	60	2· 5
43	,,	Ireland to Newfoundland	1 ,,	18×7 =126	2160	2160	2400	1
44	1859	Alexandria Harbour	4 Strands	10	2	8	..	5¼
45	,,	England to Heligoland and Denmark	3 ,,	12	368	1104	30	4
46	,,	Scio to Smyrna	1 Strand	16	40	40	40	0·89
47	,,	Syra to Athens	1 ,,	16	105	105	150	0·89
48	,,	Sweden to Gothland	1 ,,	12	64	64	80	2· 5
49	,,	Folkestone to Boulogne	6 Strands	12	24	144	32	9¼
50	,,	Across Rivers, India	1 Strand	9	10	10	..	4¼
51	,,	Otranto to Avlona	1 ,,	18	50	50	400	0·89
52	,,	Malta to Sicily	1 ,,	10	60	60	79	3¼
53	,,	Jersey to France	1 ,,	12	21	21	15	3¼
54	,,	South Australia to Tasmania	1 ,,	10	140	140	60	2
55	,,	Singapore to Batavia	1 ,,	18	630	630	20	0·94
56	,,	Spain to Africa	1 ,,	18×7 =126	25	25	..	1· 0
57	,,	England to Isle of Man	1 ,,	10	36	36	30	2·5
58	,,	Suez to Aden	1 ,,	18	1750	1750	600	0·89
59	,,	Liverpool to Holyhead	2 Strands	12	25	50	14	3·1
60	,,	Syra to Candia	1 Strand	16	150	150	..	0·89
61	,,	Candia to Alexandria	1 ,,	18	150	150	1600	0·89
62	1860	Aden to Kurrachee	1 ,,	18	2060	2060	1910	0·94
63	,,	France to Algiers	1 ,,	10	520	520	1585	1·14
64	,,	Denmark, across Great Belt	6 Strands	12	14	84	18	8
65	,,	,, ,,	3 ,,	10	14	42	18	5¼
66	,,	Coast of Arracan	1 Strand	18	116	116	50	0·89
67	,,	Barcelona to Majorca	1 ,,	16	198	198	1400	1·25
68	,,	Minorca to Majorca	2 Strands	18	35	70	250	1·9
69	,,	Ivica to Majorca	2 ,,	18	74	148	500	1·9
70	,,	Ivica to St. Antonio	2 ,,	18	76	152	450	1·9
71	1861	Otranto to Corfu	1 Strand	10	90	90	1000	3·4
72	,,	Norway, across Fiords	1 ,,	10	16	16	300	2¼
73	,,	Toulon to Corsica	1 ,,	10	195	195	1550	1·14
74	,,	Malta to Alexandria	1 ,,	18	1535	1535	420	1·85
75	,,	Beachy Head to Dieppe	6 Strands	12	80	480	30	7½108
76	,,	Across the Mersey	..	..	3	3	..	..
77	1862	Pembroke to Wexford	4 Strands	12	63	252	58	5¼
78	,,	Lowestoft to Holland	4 Wires	10	130	520	30	9
79	,,	Across Rivers, Ireland	1 Wire	..	1½	1½	..	..
80	1863	Sardinia to Sicily	1 Strand	..	246	246	1025	1·72
81	1864	Carthagena to Oran	1 ,,	..	160	160	1415	0·50
82	,,	Bassora to Kurrachee	1 ,,	12	1500	1500	60	3·43
83	,,	Otranto to Avlona	1 ,,	..	50	50	600	2·25
84	1865	Atlantic Cable	1 ,,	10	1200 immersed	1200	2400	1¼

GEORGE DODD.

III.—NATIONAL ART-COLLECTIONS:

Recent Acquisitions and Present State.

The actual condition of the great public collections of works of art, was described in the 'Companion to the Almanac' for the years 1859-61. Since then large additions have every year been made to their stores, till, in each instance, the space allotted for their exhibition has become insufficient. But the public interest has fully kept pace with their increase. The value of art as an element of culture is daily more and more recognised. The usefulness of museums and galleries as places of public instruction, as well as of refined pleasure or harmless pastime, is admitted; and their appreciation by the general public is shown by the enormous and steadily increasing number of visitors, and their intelligent examination and evident enjoyment of what is exhibited. By all who have given any attention to the state of our national collections, the providing increased accommodation, either by the erection of new buildings, or the enlargement of the old, is felt to be an urgent necessity. Again and again ministers have promised to bring forward adequate plans; in the case of the National Gallery they have taken a vote for the purchase of additional ground; and there can be little doubt that in the ensuing session the subject of the national museums and galleries will occupy a considerable amount of attention. The present interval of anticipation may therefore be a convenient season in which to review generally the recent additions made to the national art-treasures, and to consider how far they go towards rendering the several collections complete in their kinds, and adapted to their avowed purpose.

I.—National Gallery.

The National Gallery, it is hardly necessary to remind the reader, comprises two great classes of pictures—those by the Old Masters, as they are termed, and those by British Artists. The pictures by modern foreign painters are too few to take into account. The official classification is—Pictures of Foreign Schools, and Pictures of the British School. The former are exhibited in the building, known as the National Gallery, in Trafalgar Square, the latter (except the Turner Gallery) in the South Kensington Museum. We may look at the works of the Old Masters first.

Since the end of 1858, when our previous notice of the National Gallery was printed, the progress of this section of the gallery has been continuous and very marked. Above a hundred pictures have been added to the collection; seventy-six by purchase, thirty by presentation or bequest. The majority of the purchases, and nearly all the gifts, have been of works of the early masters—the veritable pre-Raffaellites, predecessors in time of the Roman, Tuscan and Venetian painters who shed such glory on the first half of the sixteenth century. This, as we then remarked, had been very much the character of the purchases for some years prior to 1859, and was an almost inevitable consequence of the reaction from an exaggerated

worship of the great masters of the Renaissance period, to an equally exaggerated devotion to the ecclesiastical painters of the middle ages —a wave of the great stream of mediævalism which has for a while taken the place of the classical current. The tide, however, appears to be on the turn, and it may happen ere long that the unsightly pictures which crowd the small rooms of the National Gallery will meet with little respect. But it would be a mistake to encourage such a feeling. The early pictures, however unsightly, are of great value in an historical point of view, as well to every intelligent reader, as to the art-student and the antiquary, and it was a judicious thing to purchase them as opportunities offered, seeing that the gallery previously possessed scarcely an example. The gallery is still very far from adequately representing the early centuries and schools of so-called Christian Art; but enough has perhaps been accomplished to render it desirable that in future only very choice works of this order—choice, that is, from their rarity, exceptional beauty, or representative character—should be purchased. Bearing in mind the avidity with which these works have been sought by private collectors, and the certainty that their retention will not be desired in boudoirs and drawing-rooms long after the fashion has changed, there can be little doubt that such pictures will, at no distant day, be thrown on the market in shoals, to be bought at comparatively low rates, or be offered as gifts to the nation. With the works of Da Vinci, Raffaelle, or Fra Bartolommeo; of Titian, Giorgione, Veronese, or Tintoretto, and their compeers; of Velasquez or Murillo; of Holbein, Rembrandt, or Rubens, it is far otherwise. Every important example that appears in the market is eagerly competed for by the agents of royal and national collections, or the wealthiest of the hereditary nobility. Once in such hands a picture is virtually irremoveable, and, as such works cannot be multiplied, every such appropriation narrows still more the already narrow field of purchase. If, therefore, we are to supply the *desiderata* in works of this rank at the National Gallery, it is evident we must be watchful of opportunities, and not sparing of the cost.

The system followed with reference to the funds for purchasing pictures, is for the House of Commons to vote each year, for that specific purpose, a round sum varying from 6,000*l.* to 10,000*l.* If at the end of the year any portion of this sum remains unexpended, it has to be repaid to the Treasury; but the House is asked for a vote empowering the Treasury to return these 'savings' whenever any large outlay beyond the usual grant is called for, by the offer of an important picture or collection, or the announcement of a great sale. Thus the savings of the years 1862-65 amounted to 9,458*l.*, and the vote of that sum enabled the trustees to purchase the famous Garvagh Raffaelle without trenching on the ordinary grant. But as long as this system is pursued—and it appears to be a very good one—it is plain that the utmost reserve ought to be shown in purchasing second-rate pictures, or such as are chiefly of antiquarian interest, in order to husband as much as possible the means of securing really great works.

Of the early Italian pictures purchased since 1858, some of the

latest in date—those which heralded the coming change—are of great interest and value. Two or three of them may be particularised. And first we may mention the characteristic lunettes by Fra Filippo Lippi. One (No. 667) represents the Baptist with St. Francis, St. Lawrence, and four other saints, seated on a marble bench in a garden. It was painted for Cosmo de' Medici, and remained in the Medici palace, at Florence, till about fifteen years back. It was bought of Mr. Barker, for the gallery, in 1861, and is an unquestionable acquisition; but we chiefly refer to it here as indicating how such purchases sometimes bear fruit beyond their immediate promise. Sir Charles L. Eastlake already possessed the companion lunette, and with commendable public spirit presented it to the National Gallery, and the two are again brought together. This picture, 'The Annunciation' (666), is far more pleasing than its fellow. Filippo Lippi excelled in female heads, and in those of angels, which have ever something feminine in their loveliness, and these are exquisitely painted and charming in feature and rapt ecstatic expression. More powerful and equally characteristic, though it must be confessed not equally agreeable, is the 'Trinità' (727), of Lippi's scholar, the brilliant young Florentine, Francesco Pesellino, who died long before his master, bought at the Davenport-Bromley sale, in 1863, for 1,200*l*. 'The Agony in the Garden' (726), by Giovanni Bellini, purchased for 630*l*., at the same sale, is another noticeable work. Interesting as a fair example of the most celebrated Venetian painter of the *quattrocento*, it can hardly be described as a beautiful picture, nor does it give the same promise of the succeeding glory of the school in colour and power of characterization as is exhibited in Bellini's portrait of the 'Doge Leonardo Loredo,' already possessed by the gallery. 'The Madonna and Child,' of Beltraffio, a very good specimen of that master, serves to illustrate the slips sometimes made by connoisseurs. The picture was one of the attractions of Lord Northwick's gallery at Cheltenham, where it was attributed to Verrocchio. At the Northwick sale, in 1859, it was sold as a Verrocchio for 230 guineas: at the Davenport-Bromley sale, four years later, it was attributed to Beltraffio, and purchased by the National Gallery for 440 guineas.

The most important and the most interesting of these pictures—that in which the purchases of this class of pictures culminates—is a work in five sections (No. 663), painted in tempera by Fra Angelico da Fiesole, for the predella of the high altar of San Domenico in Fiesole. There it remained till about fifty years ago, when the monks sold it to Signor Valentini, Prussian Consul at Rome, from whose nephew it was purchased for the National Gallery in 1860, for 3,500*l*.; besides which sum, however, 700*l*. had to be paid to the Papal government "for permission of exportation," ostensibly on account of "the excellency and celebrity of the work." Whatever may be thought of the greed of the Papal government, the work, one of the most perfect and best preserved from Angelico's pencil, is abundantly worth all that was paid for it. It represents the Saviour with the Banner of the Resurrection in his hand, surrounded by angels, and adored by a great company of patriarchs and prophets, apostles, saints and martyrs, the blessed of every age and condition, who kneel on

either side. It is a picture to be sought after, for at first sight it is not particularly attractive. The figures (there are over 260 in all) are very unequal, and some are marred by imperfect technical power, and the intractable nature of the vehicle in which the painter worked, but many of the angels are of that pure and elevated order of religious beauty which none rendered better than "the angelic painter," few so well, and some of the female faces are of unsurpassed loveliness. Study them carefully and you will hardly wonder that Vasari should write of them while they were still almost in their primal bloom and freshness: "The infinite small figures engaged in contemplating the Divine glory are so beautiful, that they seem to be, indeed, dwellers in heaven; nor can the spectator ever be wearied of contemplating them." It is a work of which any gallery may be proud.

Other recent purchases in this class include two or three good specimens of Crivelli's pencil, the grandest being a famous 'Madonna and Child Enthroned'—the 'Madonna della Rondine'—(724), bought in 1862 for 2,182*l.*; to which Mr. Labouchere (now Lord Taunton) added another hardly inferior to either, 'The Annunciation' (739); a 'Salvator Mundi' (signed and dated 1465), by Antonella da Messina, who introduced the Flemish system of oil painting into Italy; examples of Mazzolino, Francesca, &c.

Of the more widely famous Italian painters of the sixteenth century, their scholars and successors, the purchases during these six years have been such as to add greatly to the value and completeness of the collection. By Francia there is a 'Virgin and Child with two Saints' (638), which formed one of the Beaucousin collection, purchased in 1860; by Bronzino, a meretricious allegory (651), entitled in the catalogue 'Venus, Cupid, Folly, and Time,' but which appears intended to symbolize Sensual Love, also included, with a 'Portrait of a Lady,' in the Beaucousin purchase: to which may be added, by the same painter, 'A Knight of St. Stephen' (670), presented by Mr. G. F. Watts, and a portrait of 'Cosmo I., Duke of Tuscany' (704), presented by the Queen. A portrait of 'Andrea del Sarto,' painted by himself (690), is a wonderfully fine head; and the portrait of 'A Tailor' (697), and 'A Lawyer' (742), by Moroni, and of 'A Milanese Nobleman' (734), by A. da Solario, are excellent in their respective manners. The great altar-piece, from the church of San Guglielmo, at Ferrara, 'The Madonna and Child Enthroned' (671), by Garofalo, is an important second-class work. Giulio Romano's 'Infancy of Jupiter' (624), bought for 920*l.* at the Northwick sale, and the pair from the Beaucousin collection, 'The Continence of Scipio' (643), and 'The Abduction of the Sabine Women' (644), from which Rubens borrowed somewhat freely—all three well known from their place in the Orleans Gallery—though vigorous pictures, are hardly adequate specimens of the genius of Raffaelle's favourite pupil.

Ascending higher, we have from the Beaucousin series two pictures by Titian: one, 'A Madonna and Child with the Baptist and St. Catherine' (635), formerly in the Escurial, though not one of his great works, a very interesting example,—the St. Catherine, by the way, bearing testimony to Rubens' study of the Venetian master; the other,

a 'Portrait of Ariosto,' one of those marvellous protraits in which the mighty Venetian seems to reveal the inner man, painted with a touch light as zephyr, magnificent in colour, and the effect that of nature itself seen in the glow of the declining sun.

But the principal purchase—the prize of the period under view, and one of the choicest gems in the gallery—is the 'Madonna, Infant Saviour, and St. John' (744), of Raffaelle. The Aldobrindini Raffaelle, as was then its designation, the Garvagh, as it is now termed, was one of the remarkable collection of pictures brought to this country from Italy, by that most successful of collectors, Mr. Day, in 1800-1. We had no National Gallery then, or the collection might have been transferred bodily to it, for it contained hardly a commonplace picture, and the prices set upon them were small compared with what they would now fetch.* The Raffaelle was purchased by Mr. Day from the Aldobrindini Villa, for 800*l.*, and sold by him to Lord Garvagh for 1,500 guineas. It was purchased for the National Gallery, of Lord Garvagh, a few months back, for 9,000*l.*; undoubtedly a very large sum for a square foot of painted panel (it is 14 inches by 11), but then it was painted by Raffaelle, is one of the very finest of its class, and judging by the prices recently given, would, there can hardly be a doubt, have brought a still larger sum in an auction room.

The picture is ascribed to Raffaelle's "earlier Roman period." It was evidently painted when in the maturity of his powers; yet the simple matronly grace of the Madonna and the delicacy of the execution would suggest that it was produced before his sense of feminine grace and purity had become somewhat blunted by contact with the corruption and sensuality of Rome, and his hand and brain overtasked by multiplied commissions. However that may be, the picture is one that wins everyone's sympathy. The Madonna, without being strictly beautiful, is very lovely, with a tender thoughtful expression almost amounting to sadness: a face that increases in interest the more it is studied. The Saviour is represented as a naked child, presenting a pink to the Baptist, who is looking eagerly up to him and springing forward to receive the gift. Very engaging is the divine child, very sweet the playful smile that steals across the serious countenance, though hardly indicative of Divinity. Throughout the picture the technical qualities are of a high order; the drawing is refined, the execution careful, the colour not only sweet and harmonious but fuller and richer than is common in his works—yet you feel in studying it that far more precious are its mental and poetical merits. Happily, it has been little injured by time, or the more destructive "restorer." The few touches it has received are palpable: they were put there to repair, not to mislead. At the gallery nothing more has been found necessary

* It is noteworthy that some of the best pictures in the National Gallery came from Mr. Day's collection—as the 'Venus and Adonis,' and the 'Ganymede' of Titian, and Gaspar Poussin's 'Landscape with Abraham and Isaac;' for which three Mr. Angerstein gave 6,000 guineas; the 'Christ disputing with the Doctors,' ascribed to L. da Vinci, on which a price was set of 3,000 guineas; the 'Christ Appearing to St. Peter,' of Annibale Carracci, "valued at 2,000 guineas," and the 'St. Catherine' of Raffaelle, marked 2,500 guineas, all three bought by Lord Northwick; the 'St. Jerome' of Domenichino, bought by the Rev. W. H. Carr, and bequeathed by him with the rest of his collection to the National Gallery; and finally the Garvagh Raffaelle.

than to wipe the surface lightly with a silk handkerchief in order to fit it for exhibition.

The acquisition of this picture imparts a measure of completeness to the Raffaelle division of the national collection. The pictures are, indeed, few in number and small in size; but they are not only individually excellent, but fairly representative of their class and of the marked periods of the great painter's career. The admirable little allegory, 'The Vision of the Knight' (213), is of what is known as his "first period," when, if he had quitted the studio of Pietro Perugino, he had not wholly emancipated himself from his influence. The 'St. Catherine' is an equally fine and characteristic example of his "second period." The Garvagh Madonna belongs to the earlier years of his Roman career; as the portrait of Pope Julius II., though only a replica, may represent the later. But of these later years we have in the Cartoons a series of the grandest illustrations of the master's power extant; so that when they shall have been brought to the remodelled gallery, as we trust there can be little doubt they will be, the English student will find in the National Gallery nearly as wide and quite as perfect a series of illustrations of Raffaelle's several periods or manners as in any European gallery.

Of the Spanish school, in which the gallery is most deficient, only two examples have been added; one attributed to Velasquez, the other certainly by him. The first, 'A Dead Warrior' (741), a very striking, but very unpleasant, picture, purchased at the Pourtalès sale, in 1865, though assigned to Velasquez on very high authority, there can be no hesitation in saying is not by him, but probably by Spagnoletto, or some other of the followers of Caravaggio. The other, 'Philip II. of Spain' (745), purchased in 1865, at the Demidoff sale, is a magnificently painted head, displaying all Velasquez's mastery of handling, and holding its own alongside the best of the portraits we possess.

The purchases of early German and Flemish pictures include a 'St. Veronica' (687), by Meister Wilhelm, or William of Cologne, and an 'Entombment,' by the elder Van der Weyden. Of those of a somewhat later generation we have a good portrait by Gerard Van der Meire, painted in 1449: a crowded composition of small figures, surprisingly brilliant in colour, 'the Death of the Virgin,' by Martin Schoen, and a 'Virgin Enthroned,' by Memling, purchased at the sale of Mr. J. P. Weyer's pictures in 1862, for 759*l*. One of the latest purchases for the gallery comprises a couple of panels with figures of St. John the Baptist and St. Lawrence, assigned to Memling, but hardly in his manner, and more probably by a contemporary. On the back of each panel are four red-crested storks, most likely the bearing of the person for whom they were painted. Examples of more or less value have also been added by Van Orley, Mabuse, Cornelissen, and others.

Few specimens have been purchased of the great masters of the Netherlands; but, of these few, some are of great excellence. The portrait of himself when about thirty-two, by Rembrandt (672), affords a curious comparison with the portrait of himself at an advanced age (221): this makes up the tale of the Rembrandt pictures

to thirteen, of which seven are portraits. By Hobbima there is a very good 'Landscape, Showery Weather' (685), bought in 1862 for 1,575*l.*; whilst one of the latest purchases (at the De Morny sale, 1865) is a remarkably fine 'Landscape with Ruins' (746), by Jacob Ruysdael, nearly as bright and fresh as when it left the easel. A good companion is the 'Landscape with Waterfall' (737), bequeathed by Mr. J. M. Oppenheim in 1864.

Incidentally all the pictures by the old masters presented or bequeathed to the National Gallery during the period have been mentioned, except the right royal gift from the Queen, of twenty-two pictures, chiefly works by the early German and Flemish painters, selected from the Wallerstein collection at Kensington Palace. This collection was the property of the late Prince Consort, and it was in fulfilment of his wish "to present the best of those pictures to the nation," which "remained unaccomplished but not forgotten at his death," that the Queen desired a selection to be made of the works considered suitable for the National Gallery. The works so selected include examples by Stephen of Cologne, and two or three of like rank; Memling, Van der Goes, Patinir, and others. Several of the pictures are of great excellence, and they will collectively prove of great service when the enlargement of the gallery permits a chronological arrangement of these early works.

When writing in 1858, we had to turn from the Old Masters to the British Painters, it was necessary to remark that from the initiation of the National Gallery by the purchase of the Angerstein collection, in which, as it happened, nine British pictures were included, though five-and-thirty years had elapsed, not a single additional British picture had been purchased. Some 300 British pictures had, indeed, been added to the gallery, but they were all gifts or bequests—no fewer than 157 being the gift of Mr. Vernon; whilst Turner bequeathed 100 of his own landscapes.

Happily there has since then been a slight improvement in this respect. We may, indeed, count on our fingers the British pictures that have been bought; but it is so far satisfactory that British pictures are no longer officially ignored. The half-dozen that have been purchased comprise a whole-length portrait of Captain Orme, by Sir Joshua Reynolds; two portraits by Gainsborough, a whole-length of Ralph Schomberg, M.D., and a half-length, charmingly painted, of Mrs. Siddons, which were purchased, in 1862, at 1,000*l.* each; James Ward's great picture, great in size, and the best he ever painted, of an 'Alderney Bull,' for which 1,500*l.* was paid; 'Mousehold Heath, near Norwich,' by Crome, the picture which excited such general surprise and admiration at the International Exhibition of 1862; and the 'Death of Major Pierson,' by Copley, another picture which was much admired at the International Exhibition, and which was purchased for 1,600*l.*, at the sale of the pictures of the painter's son, the late Lord Lyndhurst, in March, 1864.

But again the native pictures bequeathed and presented far outnumbered those purchased. The chief acquisition of this kind was the very handsome bequest of Mr. Jacob Bell, in 1859. It comprised

eighteen pictures, some of large size, and mostly by distinguished living artists. Among them were no fewer than seven by Sir Edwin Landseer, including such well-known works as the 'Dignity and Impudence,' 'Alexander and Diogenes,' the 'Maid and Magpie,' 'Shoeing,' and the 'Defeat of Comus:' all characteristic examples of the facile pencil of our great animal painter; 'James II. receiving news of the Landing of the Prince of Orange,' by E. M. Ward; Rosa Bonheur's 'Horse Fair,' a duplicate, with variations, of the famous original; and Frith's 'Derby Day.' At Mr. Bell's decease the 'Horse Fair' and the 'Derby Day' were in the hands of a picture dealer for exhibition and engraving; and it was only in the summer of '65 that the former was returned to the gallery; whilst the 'Derby Day,' after being made a show of all over this country, was sent to the antipodes, in the hope of obtaining Australian subscribers to the plate, and has not yet been brought back again—a somewhat free mode of dealing with national property.

Other bequests were, poor Haydon's clever failure, 'Punch,' left by Dr. Darling; Hogarth's portrait of Mary Hogarth, by Mr. Frankum; Unwin's 'Sir Guyon,' by Mr. A. Pellatt; and a portrait of himself, bequeathed by Mr. T. D. Lewis, the comedian. This last bequest was accompanied by a sum of 10,000*l.*, the interest of which is to "be laid out for the use or objects of the said gallery, or otherwise in the improvement of the fine arts."

The only British picture of much interest, that has been presented during this period to the gallery, is 'An Experiment with the Air Pump,' by Wright, of Derby—a family group, depicted under one of those effects of artificial light in which the painter delighted. In itself the picture is one of no great consequence; but it is valuable as the work of a painter whose name is more familiar than his canvases to art-students. The latest donation is a portrait of Sir David Brewster, painted by Sir Watson Gordon, and presented by the artist's brother.

Thus then we see, even in this hasty glance, that the recent acquisitions add materially both in quantity and value to the National Gallery as described in 1859. In no department can it be said that even an approach to completeness has been attained; but the collection of Italian pictures is now not only an extensive, but very important one, ranking, indeed, among the most important in Europe. The other sections are less comprehensive, but very excellent. Including the British pictures, the National Gallery now comprises 750 pictures. The rooms at Trafalgar Square cannot, even with the aid of screens, display all the works of the Old Masters and the pictures of Turner; and two hundred and fifty British pictures have to be relegated to that most inconvenient locality, South Kensington. Besides these, there are the Turner Drawings, which we may hope will not always be shut away in mahogany cabinets, for a stray connoisseur now and then to get a peep at; the Raffaelle Cartoons, for which the National Gallery is unquestionably the only suitable locality; the Mantegna Cartoons, worthy to take place not far from them; and some few other of the Hampton Court pictures (one or two of the Holbeins particularly), which might fill up *lacunæ* in the present list. Plainly, the present rooms would not accommodate all these, and if even the

rooms occupied by the Royal Academy be added, the space would soon be insufficient, whilst the accommodation would always be bad. The only really suitable room in the present building is the new room in which the Italian pictures are hung, and that, though a handsome room, and admirably lighted, is too narrow for properly displaying the large pictures, much less allowing the immense number of visitors who flock to the gallery on holidays to circulate freely.

The intention of the Government, as far as it has been made known, appears to be to extend the building northwards, over the ground now occupied by St. Martin's Workhouse and Archbishop Tenison's Library. This area is spacious enough to permit the erection of buildings adequate to meet any probable increase of the collection for many years; and also to provide room for the National Portrait Gallery and the collections already referred to. The present building, the Chief Commissioner of Works announced, is to be retained; but "probably it would be found necessary to erect a new and more imposing front." The first part of the proposition will commend itself to every one who considers the subject without prejudice or predilection. The new building at the back may very well be constructed without disturbing the present gallery, and until it is completed the pictures be left untouched. Then, when the new rooms are ready, the pictures may be removed to them, and thus the exhibition be continued almost without interruption. But to make the present wretched rooms a part of a permanent structure, of which three-fourths would be new, would be in all ways a blunder. In the end it would probably be the most costly method, and it would assuredly be unsatisfactory. No façade with any nobleness of character could be tacked on to the present suite of rooms, without at once proclaiming the utter unfitness of the union; and for any new front, differing essentially from the present, the arrangement of the rooms must be so much altered, that the cost would be little less than building new ones, with the disadvantage that after all, on passing through the grand entrance of the "magnificent front" which Mr. Cowper promises, you would come upon a suite of rooms ugly, inconvenient, and utterly ignoble, the ugliness and insignificance being of course rendered the more striking by contrast with the splendour of the portals through which you have passed, and the beauty, airiness, and adaptation to their purpose, of the rooms which lie beyond: for, spacious, beautiful, and exactly fitted to their purpose, we may assuredly take for granted the new rooms will be.

II.—British Museum.

During the past five years the art-collections of the British Museum have received several accessions of great value. The most important are the marbles and other objects discovered in the course of excavations made at Cyrene and at Camirus, and the statues purchased from the Farnese Gallery, Rome, of the ex-King of Naples, in 1864. We may give precedence to these statues, as being perhaps of most general interest, and as alone accessible to the public. The objects from Cyrene and Camirus are shut up with the Halicarnassian Marbles in the shed outside the Museum.

The Farnese Marbles comprise nine statues or parts of statues,

They have always enjoyed a high reputation in Rome, and some wonder has been expressed that the agents of the Museum should have succeeded in securing them, and obtaining the necessary permission for their removal, the transfer of such objects being regarded with extreme jealousy by the Papal government. The success of the negotiation for their purchase is understood to have been in a great measure due to the intervention of Mr. Storey, the distinguished American sculptor. To whose persuasive skill we owe the acquiescence of the Vatican has not been stated.

With the possible exception to be presently mentioned, all the statues are of what is technically termed the Græco-Roman period—in other words, they were executed in ancient Rome by Greek sculptors. One is of great interest in connection with the history of sculpture, it having been identified as a unique and very early copy of the famous statue of Polycletus, known as the Diadumenos, considered by his contemporaries to be one of the finest works of the great sculptor. Pliny describes it as "the statue tying a fillet on the head," and says that such was its reputation, that "it was estimated at the sum of 100 talents," or nearly 25,000*l.* of our money. The statue at the Museum represents a young man tying on a fillet, and in general character corresponds with the famous Diadumenos. As has been said, it is believed to be a unique copy of that work; and we must remember that nearly all the most celebrated of the ancient statues in Continental museums (as the Venus de' Medici and the Apollo Belvedere) are Græco-Roman copies of the Greek originals. But this, in its technical character, differs from most of these, and is apparently of an earlier date; whilst the material, instead of being Italian marble, is unquestionably Greek, the "famous marble of Pentelicus, so extensively used by all the greatest sculptors of Greece." In short, Professor Westmacott, R.A., himself a distinguished sculptor, as well as one of our ablest writers on sculpture, is of opinion that the statue in the Museum is "not simply an ancient copy of a celebrated work, but the original Diadumenos of Polycletus." He has arrived at this conclusion after a most minute examination of the statue, from a comparison "of the ancient authorities, as well as from his own practical acquaintance with technical points of art." It would take up too much room, and hardly be in place here, to enumerate these technical points; but they may be found fully set forth in a paper by Professor Westmacott, in the *Archæological Journal* (vol. xxi. pp. 331–46); and, without asserting that he has established his point, we may readily admit with him that it would indeed "be a subject of congratulation" if, already possessing "the original sculptures of the Parthenon, the Mausoleum, and the Temple of Apollo in Arcadia, . . . we could establish the authenticity of so celebrated a production as the far-famed Diadumenos, one of the most famous of the many statues of antiquity; a work of one of the greatest masters of sculpture whose names have been handed down to modern times." But be it the original, or a unique early Greek copy, it is impossible to examine it without feeling that it is a work of uncommon beauty. Its present place is the "Hellenic Room." Unfortunately the left arm is gone, and it has received other injuries.

Like most of the Farnese marbles, it is believed to have been found in the ruins of the Baths of Caracalla.

Another of the Farnese statues is a Mercury with the Caduceus, an almost exact counterpart of the well-known statue in the Belvedere of the Vatican, and of one almost as celebrated in the Lansdowne Gallery. All three are doubtless ancient copies of some famous Greek original. This Farnese statue has been thought to preserve most of the characteristics of good Greek work. At any rate it is a very noble figure, and in good preservation. It is placed at the western extremity of the "Third Græco-Roman Saloon," where formerly stood a well-known Caryatid.

A third important acquisition is an equestrian statue of a Roman emperor, "restored as Caligula, but probably of a later period." In itself it is an excellent work for its time, and it is especially interesting as one of the very few (four or five at the most) ancient equestrian statues extant. It will be found in the "First Græco-Roman Saloon."

The other Farnese statues are—an Apollo with his Lyre, heroic size, and fine in parts, but unhappily much and badly restored: a group of Hermes (Mercury) and Herse, the upper part of both figures restored, but the ancient part, especially of Herse, very fine: an heroic figure, subject unknown, but of a good period, and well modelled—the hands are wanting: a Faun playing with the Infant Bacchus, of a later period and the forms rather attenuated, but spirited in conception and in excellent condition. The others are fragments—a male torso, and the head of a Roman emperor, "probably Commodus." Altogether they form a most valuable addition to the Museum stores. Worthy in all respects to rank with them is the masterly head of Apollo, purchased at the Pourtalès sale.

The Cyrene Marbles were obtained in the course of excavations made in 1860–61, at the cost of the trustees of the Museum, by Capt. R. M. Smith, R.E., and Commander E. A. Porcher, R.N. Those gentlemen spent nearly a year at Cyrene, and their labours were richly rewarded. Of the sculpture discovered and deposited in (or rather outside) the Museum, the most remarkable is a colossal statue of Apollo Citharædus, playing on the Lyre, which was found in a temple of the god, the head complete, but separated from the body; the latter shattered into a hundred and twenty fragments. These fragments being carefully collected and forwarded to the Museum, were skilfully fitted to each other, and built up into a noble and beautiful statue, resembling closely in pose and character one in the Museo Capitolino at Rome. In a temple dedicated to Bacchus was found a statue of the youthful god, in fine preservation, and apparently of Roman date. The large temple of Venus supplied a draped statuette of exquisite beauty, and two small torsos, of Venus, all of the finest period of Greek art, and executed in Pentelic marble. Under the pavement of the same temple was found a life-size bronze head, evidently a portrait of the Macedonian period, and remarkable for its elaborate and minute finish. A marble group represents the nymph Cyrene strangling a lion; and there is a relief of the same subject, with the addition of a figure of Libya crowning Cyrene. A colossal female figure, wearing a diadem and veil, it is supposed

may represent a queen of the Egyptian dynasty of the Ptolemies. The statue of a Roman empress is probably of the reign of Domitian. Also of the Domitian period are portrait busts of two females, with singular conical head-dresses. A life-sized bust, a male portrait, still contains the eyes, formed of vitreous pastes, in its marble sockets. A colossal bust of Antoninus Pius is admirably executed and well preserved. The Cyrene Marbles include other fragments of sculpture, architectural ornaments, and inscriptions; but as they cannot be seen it is useless to dwell upon them.

The antiquities from Camirus, in the island of Rhodes, are the fruit of an extensive series of excavations, continued through the winter and spring seasons of 1861–64, by Vice-Consul Biliotti and Mr. Saltzmann, like those at Cyrene, at the cost of the trustees of the British Museum. "In the course of these operations, more than 275 tombs were opened, and the Acropolis of Camirus was also explored. On excavating on this latter site, various foundations of walls were laid bare, and under these foundations a curious system of galleries, with shafts at intervals, apparently to hold water, has been traced out. A variety of early antiquities in porcelain, bronze, ivory, gold, pottery, and various minerals, have been found in these shafts and galleries. The fruits of these excavations constitute some of the most important accessions which have been made for many years to the department." (*British Museum Accounts*, &c., 1864.) The excavations at Camirus have, however, added comparatively little to the sculpture galleries. Among the treasures sent over are vases, terra-cottas, statuettes, inscriptions, gold plates, and ornaments. "Some of these objects so closely resemble the art of Egypt and of Phœnicia, that they must have been either imported from those countries, or executed by native artists working under Egyptian or Phœnician influence." Probably the most valuable as works of art are the fictile vases, which "range from the earliest to the latest period of Greek ceramography, and comprise a number of interesting and valuable specimens of the best style." But "altogether the collection presents a rich store of materials for the history of Greek art, and especially during that early period when it was first developed under the influence of Egyptian and Assyrian art." Excavations which promise to bring to light large additional portions of the Mausoleum of Halicarnassus, are now in progress at Budrum, at the cost of the trustees; as are others in Babylonia.

A very interesting collection of Greek vases, terra-cottas, and other antiquities, is the fruit of excavations made by Mr. George Dennis, in Sicily, in 1861–2, at the public expense. "Most of the objects obtained by him were discovered in Greek tombs at Centuripæ, Terra Nuova (the ancient Gela), and Agrigentum (now Girgenti). The vases are chiefly *lekythi*, with subjects painted in red on a black ground, or in black on a red ground. Some few have polychrome figures on a white ground." Besides all these, numerous separate objects in the various classes have been obtained by purchase or gift. Some are both valuable and interesting; but enough has been said to indicate how rapidly the treasures of this kind go on accumulating.

If it were possible to arrange the sculpture now possessed by the

British Museum in a chronological order, covering as it does the whole range of the art, to the decline of the Roman empire, the vast extent, consecutiveness, and comprehensiveness of the collections would be more generally recognized. But want of space forbids that. The invaluable archaic marbles from Branchidæ, those from Cnidus, and those from Halicarnassus, have been shut up for years in the wooden shed under the portico; there, for anything one can see, they are likely to remain years longer; and with them, as was the case with the sculpture from Cyrene, any fresh finds will be buried. Of course if there is no room in the galleries for them they must be deposited elsewhere. But there is no excuse for placing them where they cannot be exhibited. It is simply a disgrace that works like these, of great interest in themselves, of the highest importance with reference to the history of Greek art, and obtained at the public expense, especially for the public use, should be put in an erection into which the public is not permitted to enter, nor even to peep; and that they should be kept there year after year, apparently for the private use of the keepers and the select few whom they may choose to admit. If this now very extensive and costly collection of sculpture must continue to be kept in the shed, it is quite time that some arrangement should be made for admitting the public to see it.

To the additions made to the Prints and to the Coins it will be enough to allude. In the Print Room, drawings and sketches, as well as engravings, by the masters of Italy, Germany, and the Netherlands, have been added in great abundance and variety; to the collection of coins, many of extreme rarity and value. Plainly it would be impossible here to name even a few, where the number is almost boundless. But of that number and their value some conception may be formed, when it is stated that in one year (1863), besides numerous proof engravings of the principal foreign schools, no fewer than 2,473 etchings "in various states, many of them proofs," of one master, Daniel Chodowiecki, were obtained; and in the next, to show that English art is not neglected, upwards of a thousand portraits of the British school, many of them rare: fine proofs of Hogarth, Strange, Woollett, Raimbach, and Robinson; and drawings by Marlow, Copley, Coney, Westall, W. Hunt, Behnes, and Mulready; whilst the Coin Room has received annually an average of nearly two thousand Greek, Roman, modern, mediæval, and Oriental coins and medals: and as illustrating at once the character of the additions, and the way in which the collection may be extended, we may mention that among the gifts to the Museum, in 1864, was one by Mr. Edward Wigan, of a most choice collection of gold coins, extending over the whole period of the empire. All the coins were in perfect preservation, several were of the greatest rarity, and no fewer than 223 of them were previously unrepresented in the Museum cabinets.

But in considering these now invaluable collections, it is impossible not to feel that the use made of them is not at all in proportion to their value. Mainly no doubt this is due, as the authorities allege, to the want of space; but very greatly also to the needlessly jealous regulations with which they are fenced about. To the general public they are wholly inaccessible and virtually unknown. The number of

visits (not visitors observe, every visit being reckoned) to the Print Room, in 1864, was 2,361; to the Coin and Medal Room, 1,822—in the one case not more than ten, in the other, hardly seven a day, and this includes the attendance of all *professional* visitors. Now, bearing in mind the great number of persons who delight in looking at a good print, the many who would be glad to examine consecutively the works of an eminent engraver, or the various engravings after a particular painter, the curiosity that would lead others to look at the unrivalled collection of the designs or etchings of Albert Durer, Holbein, or Rembrandt; or again to examine a standard copy of some famous engraving, in order to verify a print in their own possession, or to inspect some particular plate of which they had just been reading: or, on the other hand, to see, whether out of curiosity or as an illustration of their reading in general history or art, a series of well-preserved Greek, Roman, or mediæval coins, or the coin or coins of some particular sovereign or dynasty, it becomes evident, that for such a city as London, the number of visits is ridiculously small; so small indeed, that if there were nothing to account for it in the arrangements of the institution, it might well be questioned whether it were worth while to keep up so costly an apparatus for so trivial an end. But the truth is, none but students, who *must* use the collections, and amateurs with plenty of leisure on their hands, will take the trouble to go through the formalities, or submit to make the kind of application which must be made in order to obtain admission into these rooms. Busy men, or humble students, the men most likely to avail themselves of a spare hour or chance opportunity, for one or other of the purposes named above, and well fitted to appreciate such collections, would never dream of going through the irksome routine requisite to procure "a ticket of admission to the Print Room for six months," when probably they would not be able to visit the room more than twice or thrice in that period. And for the Coin Room the same tedious formalities must be repeated. For it is one of the cherished red-tapeisms of the institution that a distinct written application, with "recommendations from some persons known to the trustees," must be made for admission to Reading Room, Print Room, and Coin Room; instead of, as is obviously sufficient, one such application sufficing for the three: if, indeed, formal applications and formal recommendations are necessary at all.

These remarks may appear ungracious; but it seems to us they ought to be made. Knowing well the almost incalculable value of these collections, we feel it to be a grievous thing that so little use should be made of them. It may be, that from the very nature of the collections, anything approaching to indiscriminate admission can never be given to them. But assuredly as they are public, and not private, property—a thing not always kept in mind by the curators—they should be rendered useful to all who are desirous to make use of them. Rare prints and unique coins cannot be left for every one to handle. But selections, judiciously made and occasionally varied, might be, and ought to be, publicly exhibited. With the prints this has been done, and well done, for the last few years, though on far too small and circumscribed a scale; but ever since the present building has

been opened the coins have been jealously kept from the public eye. Yet how easy it would be to mount, say a Greek series, or the Roman emperors, or our own beautiful coins and medals of the Commonwealth, in cases of moderate size, so that from the outside, without fear of loss, and without the possibility of injury to the coins, the observer might turn them so as to see both obverse and reverse, or to have them so fixed that the reverse might be reflected in the looking-glass lining the bottom of the case. This, if the series were occasionally changed—due notice being given of every such change—would probably suffice, as far as the general public is concerned, for both coins and prints; whilst the more extended collections would be left for the more leisurely and minute examination of students, and all who, having a special object in view, might think it worth while to make a special application. Next year, when the subject of additional space for the Museum is discussed, something may possibly be done in this direction—if a little external pressure be applied. Without that there is small hope. Museum forms are stereotyped.

III.—South Kensington Museum.

Here we must touch very cursorily. The Museum at South Kensington is of too miscellaneous an order, is too wide a gathering of odds and ends, to allow of more than the most general reference to the acquisitions made since our previous notice; and the oddly heterogeneous collections are in too chaotic a condition to permit of any attempt to estimate their degrees of completeness. Large additions have been made to the buildings, spacious new "courts" have been opened, and some conception may perhaps be formed of what will be the ultimate aspect and arrangements. But how many of the strangely-assorted collections at present there will be included within the permanent buildings, or what will be the connecting idea by which they will be held in some sort of harmony, must be left to the determination of time, chance, and the South Kensington magnates.

The section in which the additions of most permanent value have been made is perhaps that of Italian Renaissance Sculpture. At first glance this hardly seems to belong to a Museum of Ornamental Art; but the lines dividing the fine and ornamental arts are at best indistinct; and no other museum has made any effort to secure specimens of the renaissance sculpture. We may therefore be content to accept the boon, and pass over the incongruity unnoticed. But Mr. Robinson, in the Introduction to the *Catalogue of Italian Sculpture*, explains why the South Kensington Museum is the most suitable place for such a collection. "It is the intimate connection of mediæval and renaissance sculpture with the decorative arts in general, which clearly indicates this museum as the proper repository for this class of the national acquisitions: consequently, the present collection should be regarded as part of a methodic series, following the antique sculptures of the British Museum, to be eventually continued down to our own time, so as to form a complete collection of what, in contradistinction to the similarly general term *antique*, may be fitly designated *modern* sculpture." Hence, during the last few years, "every effort has been made to secure for this museum such works of mediæval and

renaissance sculpture as were to be obtained, especially in Italy; and it is not too much to say, that a very considerable proportion of the specimens, which had been accumulating in the hands of dealers and private possessors for a long time previously, has now passed into this collection."

The chief addition to the Italian sculpture was made about the end of 1860, by the purchase from the Papal government of all the specimens, considered worthy of selection, from the Gigli-Campana collection. The number of specimens was 84; the price paid for them, 5,836*l*. The prize in this collection was the life-size statue of Cupid, executed by Michelangelo, when in his 24th year, for Jacopo Galli, a Roman banker. For two or three centuries it stood in the Riccardi Gardens, Florence; and whilst there the uplifted hand was made a mark for pistol bullets by distinguished idlers. The statue was bought, in 1854, by Signor Gigli, of the Marchese Giuseppe Stiozzi, to whose family the Riccardi Gardens had passed. The god, kneeling on one knee, has just despatched an arrow earthward, and is watching its downward flight. In its way it is a masterpiece, and of its authenticity there is no doubt. The uplifted arm is a restoration, by Professor Santarelli, of the Academy of Florence. An unfinished statue of St. Sebastian, about three feet and a half high, is believed to be a much later work of Michelangelo. A bas-relief in marble, by Donatello, 'Christ in the Sepulchre, supported by Angels,' is a remarkably fine example of the master; and another by the same hand, a predello, 3 ft. 9 in. by 1 ft. 4 in., 'Christ giving the Keys to St. Peter,' is an equally beautiful and famous work. By Desiderio there is an alto-relievo of the 'Virgin and Child;' and another, also in marble, of the 'Salutation,' from the school of Pisano. By Pisano himself there is a terra-cotta of the 'Virgin and Child;' another of the same subject by Jacopo Della Quercia, and others by Lorenzo Ghiberti (the 'Birth of John the Baptist'), by Antonio Pollaiuolo ('a Combat of Naked Men'), by Civitale, &c.; and twelve plaques of the Months by Dellà Robbia. Besides these, there have been purchased portions of the sculpture, and the original drawing, prepared for the tomb of Gaston de Foix, by Agostini Busti (Il Bambaja), 1515–22, but never erected.

The additions made in the departments of Ornamental Art, more strictly so called, include an almost endless number of articles in metal work, jewellery, porcelain, enamels (including very fine examples of Limousin and Limoges), carvings in ivory and wood, furniture, &c.; besides many modern articles from the Exhibition of 1862. Many of these are in their way very admirable, but many are merely curious; and the whole collection has much the appearance of having been brought together and arranged under the influence of that *genus loci* which has imparted so peculiar an atmosphere to South Kensington, and rendered it so perfect a representation and exponent of the fashionable dilettanteism of the time. The price at which some of the fashionable follies have been bought may be judged of from the fact, that a candlestick, in Henri Deux ware, twelve inches high, purchased when the Henri Deux fever was most virulent, cost no less than 720*l*. Taking it from the collectors' point of view, the great

value of the collections may be readily conceded. As mere curiosities most of the articles will retain their interest; but it would be attaching too much importance to the mere whim of the hour to suppose that a large portion will enjoy more than a transient favour, or be of lasting value as guides to the art-manufacturer or designer. But even of those which are in themselves least admirable, many have done yeoman's service as models for those art-manufacturers and designers who have to cater for the fashionable taste of the day. And it is only just to say, that much of the collection is of permanent value, and well fitted to instruct the designer in every branch of art-workmanship. How much our designers and workmen stand in need of a more thorough study of the principles, and even of the processes, of their callings, is strikingly shown by a home example—the half-dozen screens and gates of hammered iron-work recently removed from Hampton Court to the Museum. These were executed by Huntington Shaw, of Nottingham, in 1695, and, with some exuberance of design, are perfect marvels in their way—foliage almost as free, flowing, and graceful as that of nature herself—admirable as to lines and curves; and yet, as iron-work should be, bold and substantial in the general effect.

Paintings form, as every one knows, a leading feature of the Museum. But all that are here do not belong to it. The British pictures of the National Gallery are deposited here, but only temporarily. The permanent portion is—in oil painting, the Sheepshanks Collection, with one or two subsequent additions; in water-colours, the Ellison gift, to which several more drawings have been added, and which is becoming a really valuable and instructive illustration of the rise and progress of this essentially national branch of art. For both the collections new and somewhat luxurious apartments have been provided; so that the pictures are seen as they were painted to be seen, in a sort of drawing-room light.

The loan collections have become so much a regular part of the exhibition here, that they may be regarded as a characteristic feature of the South Kensington system. Doubtless they have had a large share in imparting the dilettante air which seems native to the place; but they are of exceeding interest and value. Mr. Walter's Dutch and Flemish pictures, now exhibiting, the snuff-boxes and jewellery, the majolica, and the ecclesiastical utensils and millinery, all in their way have their use for the student, and afford instruction and amusement to the holiday visitor. Of still higher value and interest might have been the extraordinary collection of miniatures shown during the past summer, if it had been arranged with some regard to chronological order and historical character. Something indeed was done to obviate the inconvenience of the chance-medley hanging, by the publication of a catalogue; but, as though to prove that the exhibition was mainly for Belgravian visitors, the price set on it was five and ten shillings.

In the coming summer there are to be two of these loan exhibitions, of a more important character perhaps, at any rate of a more national character, than any hitherto held. One is to consist of "such works of Raffaelle (fine copies as well as originals) as can be brought together," and will be under the direction of the Department of Art; and if as heartily responded to as all such appeals to the

owners of important works of art have hitherto been, it will be an epoch in the life of the zealous art-student. The other is the Exhibition of British Portraits, suggested by Lord Derby, and warmly supported by the Government. The portraits at the Manchester Art Treasures Exhibition, in 1857, did something to evince the marvellous wealth of England in this line of art; but only those who have visited many of our country mansions can know how very widely diffused valuable portraits are, or how often they exist in unsuspected places. It will doubtless be a glorious collection; but the experience of the exhibition of miniatures is a sufficient warning that it must not be entrusted solely to South Kensington management. In connection with it there must be no five and ten shilling catalogue folly.

The mention of the proposed Raffaelle exhibition reminds us that the Cartoons have been removed from Hampton Court to South Kensington. They are in the long room built originally for the British pictures belonging to the National Gallery, and they are seen to such advantage there, seen as they never were before. Probably it was their removal that suggested the idea of collecting about them as many as possible of the many works of the master to be found in the private galleries of the country. Whether the cartoons are to be returned to Hampton Court has not been officially stated, but we may hope not. Their permanent resting-place, however, should most assuredly not be at South Kensington, but in the most favoured part of the new National Gallery.

National Portrait Gallery.

No space has been left to speak of this youngest, but not least interesting, of our galleries. But it is the less necessary to dwell on it, as we described it before at some length, and though largely extended, the principle on which it was established remains unaltered, and it is still in its old inconvenient locality. The portraits have increased more than threefold, and several of the additions are valuable as works of art, as well as on account of the persons they represent; though very properly their artistic character is but a secondary consideration. The admission is on the most catholic scale: the doors are opened as freely to Oliver Cromwell as to George the Fourth, and the 'Sinner Saved' finds admission alongside Lord Byron and Bishop Horsley. Father Mathew is arm-in-arm with Horace Walpole and the Duke of Monmouth; and there, in the little ante-room, is Jeremy Bentham in dangerous propinquity to Nell Gwynn.

When larger rooms are obtained, the pairing will doubtless be a little more orderly; but even as they are crowded together, they are an assembly worth elbowing and being elbowed, and some straining of the eyes, to behold. But more space is indispensable. There was some talk of inviting them to that *omnium gatherum*, South Kensington. Now we hear the new National Gallery spoken of. Why should they not have a house of their own? There will be plenty of ground soon on what will be one of the most accessible sites in London, the Thames Embankment; and it is a site which cries out for edifices worthy of its unrivalled facilities. What better beginning than a stately Gallery for our British Worthies?

James Thorne.

IV.—FORESTS AND OPEN SPACES AROUND LONDON.

It is odd how little we know often of what is close at hand, and how far we wander in search of that which we might find perhaps better at our door. All the daily newspapers have sent out this autumn their Own or their Special Correspondents to follow on the track of the tourists making the grand circuit of continental railways and hotels, and glaciers and gaming-tables; and in their superbly supercilious dialect they have told of the places they have seen, and the people they have met, with affected nonchalance, but real, honest, wondering unction. Yet amidst all their admiration of peaks and cafés, of the *monde* and the *demi-monde*, it has been quite refreshing to see with what heartiness they note anything that looks like a bit of old English out-of-door nature. If by chance they come across a few roods of oak forest or ragged copse, they rhapsodize over it for the edification of their London readers as though they never saw forest except as an opera scene, or heard of a greenwood except in a song.

And yet there are, or were only the other day, forests—perhaps one ought to say remnants of forests—of very respectable dimensions (as well as purple heaths and furze-clad sandy commons) just beyond our own over-grown yet ever-growing capital, and almost touching its outer belt of bricks and mortar. These forests are, or were, there is no concealing the fact, dreadfully vulgar forests; the resort, the delight, and the boast of the dwellers in the far East of London, though unknown, or if not unknown ignored, and unvisited by the politer West. But as they have been, and are passing away under our eyes, it is perhaps worth knowing something more about them before they have quite ceased to be.

Hearing a good deal said about the extent of recent encroachments and inclosures in these home forests, I resolved to see what changes had really been made in the once familiar places, and for which old recollections secured a strong liking. One visit led to more, and to inquiries which soon extended to other "open spaces." The proceedings of the "Select Committees" of the House of Commons, on "Royal Forests" (1863), and on "Open Spaces (Metropolis)" (1865), supplied matter for comparison; and in the end I thought some of the desultory notes made in passing might be usefully put before the readers of the 'Companion to the Almanac.'

A stroll in Epping Forest will best show what has been doing there of late. Loughton is the favourite starting point for a forest ramble, because being a station of the Great Eastern Railway it is easily reached, whilst from it you plunge quickly into the thick of the woods. If you knew the place of old you would take, mechanically, the lane just beyond the station, which leads behind the village, because from it you might strike at once upwards towards York Hill, and, if the morning mists had sufficiently cleared, be rewarded by a prospect across Hainault and the Thames to the blue hills of Kent and Surrey, or in other directions over a sea of deep green foliage chequered by the swiftly-chasing cloud-shadows; or, guided by the long, winding, up-hill road, you might turn at once towards High Beech, choosing

for pleasant shade and ever-shifting scenery—now moist dell, now broken upland with peeps of purple distance—the true forest way on either hand, thick with knee-deep ferns, and in spring or early summer carpeted with primroses, blue-bells and wind-flowers, loaded with the perfume of woodbines and May-blossoms, and alive with the call of cuckoos and wood-pigeons, and the myriad voices of loud-throated song birds.

A year or so back you might have taken either of these pleasant ways, but try for either of them now and you will find yourself blocked out by ugly fences, or stopped by deep trenches and sod walls. By Loughton itself, straight roads and formal inclosures and broad rectangular clearings show that a colony of spruce villas is about to occupy the place of the old oaks and hornbeams. Along the road beyond the trees are yet standing, but fences line either side. I tried an old and pleasant forest road on the left towards Fairmead, and soon came upon a deep ditch and earthen rampart, but, instead of ancient camp, found beyond naked newly ploughed fields, and then wide plantations of seedling trees and shrubs. "No, sir, these are not substitutes for the stubbed up antique trees, but choice plants belonging to Mr. Paul, who has formed a great nursery here supplementary to his establishment at Cheshunt." Huge piles of grotesque roots tell but too plainly of the thousands of rare old trees that have been removed for this improvement. Over much of the parts described I had wandered at will the previous summers. Now the whole of Loughton Manor—some hundreds of acres—is inclosed, as well as the forest on both sides of the road up to High Beech, and all the land between it and the Epping Road: not all disafforested yet, but a tract in parts of marvellous beauty lost to the visitor for ever.

If instead of Loughton you leave the railway at the Buckhurst Hill station and proceed that way towards High Beech, you will witness a similar process completed or in progress. By the station the inclosures date from the opening of the railway. There and up the hill a good sized village has grown up, incomplete, ill-contrived, and ugly as railway villages usually are. But till lately, hastening away from it, you soon reached the open forest. Now fences line the road from the church best part of the way to High Beech. Where you used to find or make a charming woodland path from the Warren House to Chingford, you now encounter straight lines of sod and fence and naked fields. A little farther you may, however, take a forest road, and passing Fairmead Lodge go through an exquisite bit of untouched forest to the King's Oak—goal of the cockney holiday maker.

High Beech itself—or the better portion of it—happily remains almost unencroached upon. High Beech Green has met the common fate, but High Beech Hill is as it was, though along the road small inclosures have crept close up to it. Across Waltham and the valley of the Lea, and south-westward to where "the city lies, beneath its drift of smoke," the view remains unobstructed, and you may stroll at pleasure about the broad platform and choose your own station for viewing it; or lie on the slopes and think of Tennyson and Locksley Hall, and wonder how much of his inspiration the Laureate drew from wandering among these hollows, "knee-deep in fern," and hold-

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A stroll in Epping Forest will best show what has been doing there of late. Loughton is the favourite starting point for a forest ramble, because being a station of the Great Eastern Railway it is easily reached, whilst from it you plunge quickly into the thick of the woods. If you knew the place of old you would take, mechanically, the lane just beyond the station, which leads behind the village, because from it you might strike at once upwards towards York Hill, and, if the morning mists had sufficiently cleared, be rewarded by a prospect across Hainault and the Thames to the blue hills of Kent and Surrey, or in other directions over a sea of deep green foliage chequered by the swiftly-chasing cloud-shadows; or, guided by the long, winding, up-hill road, you might turn at once towards High Beech, choosing

for pleasant shade and ever-shifting scenery—now moist dell, now broken upland with peeps of purple distance—the true forest way on either hand, thick with knee-deep ferns, and in spring or early summer carpeted with primroses, blue-bells and wind-flowers, loaded with the perfume of woodbines and May-blossoms, and alive with the call of cuckoos and wood-pigeons, and the myriad voices of loud-throated song birds.

A year or so back you might have taken either of these pleasant ways, but try for either of them now and you will find yourself blocked out by ugly fences, or stopped by deep trenches and sod walls. By Loughton itself, straight roads and formal inclosures and broad rectangular clearings show that a colony of spruce villas is about to occupy the place of the old oaks and hornbeams. Along the road beyond the trees are yet standing, but fences line either side. I tried an old and pleasant forest road on the left towards Fairmead, and soon came upon a deep ditch and earthen rampart, but, instead of ancient camp, found beyond naked newly ploughed fields, and then wide plantations of seedling trees and shrubs. "No, sir, these are not substitutes for the stubbed up antique trees, but choice plants belonging to Mr. Paul, who has formed a great nursery here supplementary to his establishment at Cheshunt." Huge piles of grotesque roots tell but too plainly of the thousands of rare old trees that have been removed for this improvement. Over much of the parts described I had wandered at will the previous summers. Now the whole of Loughton Manor—some hundreds of acres—is inclosed, as well as the forest on both sides of the road up to High Beech, and all the land between it and the Epping Road: not all disafforested yet, but a tract in parts of marvellous beauty lost to the visitor for ever.

If instead of Loughton you leave the railway at the Buckhurst Hill station and proceed that way towards High Beech, you will witness a similar process completed or in progress. By the station the inclosures date from the opening of the railway. There and up the hill a good sized village has grown up, incomplete, ill-contrived, and ugly as railway villages usually are. But till lately, hastening away from it, you soon reached the open forest. Now fences line the road from the church best part of the way to High Beech. Where you used to find or make a charming woodland path from the Warren House to Chingford, you now encounter straight lines of sod and fence and naked fields. A little farther you may, however, take a forest road, and passing Fairmead Lodge go through an exquisite bit of untouched forest to the King's Oak—goal of the cockney holiday maker.

High Beech itself—or the better portion of it—happily remains almost unencroached upon. High Beech Green has met the common fate, but High Beech Hill is as it was, though along the road small inclosures have crept close up to it. Across Waltham and the valley of the Lea, and south-westward to where "the city lies, beneath its drift of smoke," the view remains unobstructed, and you may stroll at pleasure about the broad platform and choose your own station for viewing it; or lie on the slopes and think of Tennyson and Locksley Hall, and wonder how much of his inspiration the Laureate drew from wandering among these hollows, "knee-deep in fern," and hold-

ing converse with some Talking Oak; or of poor John Clare in his wearisome confinement in Fairmead Asylum, down there by the little chapel, spinning half-coherent sonnets on distant "Bucket's Hill, a place of furze and clouds," and the "Forest and its airy bounds;" or, tired by your walk, and thinking more of appeasing the sacred rage of hunger than of poets past or present, you may turn aside and test the hospitality of the King's Oak—though, to say the truth, you are likely in these days (it was otherwise of old) to find it a hostelrie suited rather to van and railway excursionists than a quiet forest rambler. But though High Beech Hill is a little noisy on holidays, it is at other times a pleasant place. Not only have you the hill and the strip of forest just passed through, but running off from that the Beech Wood—a place for an artist and lover of nature to rejoice in; in spring and summer canopied with tenderest and brightest green flickering with broken sunlight and softened shadow, in autumn glorious with resplendent hues. Lying so near to London it is a marvel this beech wood is not more famous. The trunks of the trees may not be so large—though many are veritable giants—nor the roots so gnarled and variously intertwisted as those of Burnham, but then they have been allowed to grow unlopped, sending off wide-spreading branches far outwards and upwards—trees almost in themselves. And then onwards from King's Oak, leaving the high road to your right, you may go towards Epping along an undulating forest road, by ways as yet uninclosed, amidst lopped oak and hornbeam, with here and there a goodly unlopped beech, ash, or oak, and an endless undergrowth of hollies, thorns and tangled brambles, rose bushes, sweet briars and honeysuckles, with luxuriant banks of ferns and flowers of all hues, and come at every turn upon such sketchable spots as would have delighted the heart and tried the best skill of Ruysdael, Köninck, or Crome. There is still a mile and a half of this sort of scenery till you come close to Wake Arms, and there again is the high road, and there the inclosures; and so away to Epping or Copped Hall, or whichever way you turn, you find yourself kept from straying by sod banks and fences, where only the other day all was open and free. There is indeed one well-known spot still left open, though there are symptoms that it will not long remain so. Ambresbury Banks (a little off the road on the right, a bare mile beyond the Wake Arms), an ancient earth-work, with fosse and vallum in good part still traceable, but the inclosure overgrown with beech, which antiquaries of the Stukeley school persuaded themselves they had identified as the last stronghold of Cassivellaunus before his final retreat to his *oppidum* in the marshes below St. Albans.

And if, instead of beginning here in the heart of the forest, we had made our approach more methodically by way of Wanstead Flats, and Snaresbrook, and Woodford—whether we had kept by the road or diverged right or left—we should have found everywhere the same marks of the improver's footsteps. One of the most characteristic portions of the forest was that by the old forest lodge, afterwards half-farm, half-inn, now wholly farm-house, known as Queen Elizabeth's Lodge, lying between Chingford and Buckhurst Hill. By the lodge was a broad level space covered with very large and picturesque oaks,

and sloping away in all directions was open forest, chiefly as elsewhere of pollard, hornbeam, and tangled underwood. Queen Elizabeth's Lodge remains; a good piece of the oak-wood is left; but below on the south the land is all inclosed, roads have been laid out and villas built; whilst northwards a great encroachment has been effected of nearly the entire 300 acres of which the manor consists; the ground has been inclosed, the trees have been grubbed up, and the old ways stopped, so that, as a resident told the committee, "we cannot get to the uninclosed common land without going a mile or two round." So again we find it at Sewardstone, the boundary of the forest on this side, and equally over at Theydon, the extreme limit on the other.

And now, having seen how the woods have been, and are still being hacked to pieces, we may be the better prepared to take a rapid retrospect of the manner in which this bit-by-bit destruction of one "Royal Forest" has been brought about, and afterwards glance at the swifter and more systematic demolition of another.

Epping Forest is a portion of the great forest of Essex, which, in Norman times, extended almost unbroken across the county, and through a good part of Middlesex. As, in process of the ages, portions of it were disafforested and it was reduced within a moderate compass, it came to be entitled the Forest of Waltham; a name derived, no doubt, from the proximity of the untouched portion to Waltham Abbey, and to the fact of the abbot and monks having manorial rights over part of it, and drawing from it store of venison for feast days, as in the Lea they found abundant fish for fasts. In the reign of Charles I. an Act was passed for "settling the bounds" of this and other forests, and in pursuance of it "a perambulation and inquisition" was made in 1640, "and the metes and bounds of it were finally settled." The boundaries of Waltham Forest, as thus fixed, include twelve parishes wholly within the forest, and nine partly within it; but the inclosed is not distinguished from the open land in the plan of the forest attached to the perambulation. In 1793, the commissioners appointed by the House of Commons to inquire into the condition of the woods and forests, and whose report must be taken as the basis of all subsequent inquiries, estimated the forest to contain "in all about 60,000 statute acres, of which about 48,000 acres are the estimated contents of inclosed private property, and the remaining 12,000 acres, the amount of the uninclosed woods and wastes." This forest, as thus estimated (the inclosed grounds being put out of the reckoning) consisted of two entirely detached parts, on opposite sides of the valley of the Rother; Epping Forest to the north and west, Hainault Forest to the south of that river. In his evidence before the Committee of 1863, Mr. Howard, one of the commissioners of woods and forests, stated, that of the 9,000 acres of which Epping Forest consisted in 1793, they could not then "make out more than 7,000 acres in round numbers;" the remaining "2,000 acres have been lost by inclosure, but at what time we cannot ascertain." This quantity the committee accordingly state in their report to remain uninclosed. But in this they were mistaken. What the commissioner meant was, that they could account for 7,000 acres; 2,000 had been "lost," when, or under what circumstances, they

could not ascertain. Of the 7,000 acres a great many had been inclosed before 1868.

Though a "Royal Forest," the crown has no claim to the soil in Epping Forest, or any portion of it. Originally, no doubt, the ownership was in the crown, but it was granted away centuries ago, and the land is now held here, as elsewhere, by the lords of the manors, freeholders, and copyholders, but subject to the right reserved by the crown of "vert and venison," and of the commoners' right of pasturage. In other words, "the crown has in this, as in other forests, an unlimited right to keep deer in all the uninclosed woods and wastes within the perambulation," and also to "their herbage, vert and browse." And these crown rights are held to include a right over "all the beasts of the forest," the trees and underwood, and whatsoever grows within it; and the power of granting licences to hunt and shoot within its boundaries. On the other hand the commoners' rights extend to every householder within its boundaries, paying a rental of 2*l*., the right of pasturage, as before defined, except during Fence Month (the fifteen days before and after old Midsummer-day), and in some parishes the lopping of trees for fuel.

Whilst these rights remained, it is clear that no legal inclosure of land could be made. And to see that the "forest laws" were duly enforced, and to prevent unauthorized encroachments, the forest was divided into *walks*, and proper forest officers, and a forest or verderer's court, were instituted. The principal officer was a warden, at first nominated by the crown, but James I. conferred the post on Edward, earl of Oxford, his heirs and assigns in perpetuity: it was sold in 1709, for 7,000*l*., to Sir John Child, and passed to his son the Earl of Tylney, and eventually to the Earls of Mornington, the last of whom died in 1863. The other officers, as existing at the date of the Commissioners' Report, in 1793, were a deputy warden, or lieutenant, a riding forester (whose duty was to keep all the rides open), a purlieu ranger, four verderers, a steward, a king's woodward, four under purlieu rangers, with a master-keeper and an under-keeper for each of the walks. The verderers were elected by the freeholders of Essex; "all other officers were appointed by the warden (who used to get from 200*l*. to 500*l*. for the nomination of each master-keeper), except the under purlieu rangers and under-keepers, who were appointed by the ranger and the respective master-keepers," their salaries, however, being paid out of the civil list revenue. Most of these offices have fallen into abeyance. One verderer is left, but he holds merely the title, as two are necessary to constitute a court. The care of the forest is left to two keepers and their under-keepers. As long as any real power remained with the verderers, their office, although no salary was attached to it, was keenly contested; in the case of Colonel Burgoyne and Mr. Bosanquet, for instance, the poll was kept open for fourteen days, at a cost to Mr. Bosanquet, who was elected, of 10,000*l*., to his opponent of 7,000*l*, But since the office became nominal vacancies have ceased to be filled. The last election was in 1842, when Colonel Palmer, the only verderer remaining, was chosen. The verderer's court was held at Chigwell for 250 years till 1854, when the meetings ceased: "The Commissioners of Woods and Forests and the Attorney-General having refused," says Colonel

Palmer, in his evidence before the Committee of 1863, "to give us the assistance and support which we had a right under the Act of Parliament to require and expect," in abating the encroachments and inclosures, of which the court had made presentments. By their oaths at admission the verderers were bound "to preserve and maintain the ancient rights and franchises" of the crown and of the commoners, and to execute the laws of "the forest with equal justice to the poor and to the rich." With the abandonment of the court a powerful check was removed on unauthorized encroachments, and the means of redress were practically closed for the poorer commoners.

Partial inclosures had been made for several years, sometimes by persons who had obtained a grant of the crown rights, sometimes entirely unauthorized; their numbers increasing considerably from about 1850. At length, in 1855, the Lords of the Treasury issued a warrant to the Commissioners of Woods and Forests, authorizing them to sell the forestal rights of the crown. The commissioners in consequence sent round a circular "to the lords of the manors, and other owners of the soil," inviting them to purchase these rights; and so successful was the appeal, that by 1863, the forestal rights over 3,513 acres had been sold for somewhat under 16,000*l*. No reservations of any kind were made: the commoners were left to maintain their rights as they could, and the purchasers free to do what they pleased with their own. This wholesale extinction of the forestal rights of the crown, followed by extensive inclosures, led to such dissatisfaction on the part of the commoners, and to so many complaints from those who were accustomed to resort to the forest, and now beheld it in process of silent destruction, that the House of Commons, early in 1863, passed a resolution prohibiting any further sale of the crown rights.

As no inclosures could be made if the forestal rights were maintained, and as the expressed intention of the House was to prevent inclosures, pending inquiry and consequent legislation, it might have been supposed that a stop would at once have been put to them. But now comes what is really the most curious part of their history. So far from the resolution putting a stop to inclosures, it (indirectly) gave an extraordinary impetus to them.

And thus it happened. The Board of Woods had set its heart on selling the whole of the forestal rights, and was proud of the price it was getting for them. It triumphantly declares that but for that foolish resolution it would have obtained 12,000*l*. by selling the crown rights over what was left of the forest. It was consequently annoyed at being interfered with, and it determined to show its sense of the slight put upon it in its own way. The House wanted to check inclosures: the board would sublimely fold its arms, and, letting its intentions be quietly whispered about, whatever might happen, would look on and say nothing. Inclosers would, of course, take their own course. The board had, in fact, worked out for its guidance a notable theory. The business of the department is to manage the crown lands, rights, &c., for the purpose of revenue. But as the resolution of the House of Commons precluded the sale of the forestal rights, the crown has no longer any pecuniary interest in their maintenance. The department, therefore, would not be justified in taking any steps

to prevent encroachments, seeing that such steps might lead to expensive litigation, without any compensating pecuniary benefit. Let us watch how this works. The Commissioner of Woods is officially informed that a portion of land is being inclosed, the crown rights of which are unsold. It is an experiment to try whether the rumour is true that the crown will no longer abate an encroachment even when its rights are at stake. The board makes no sign: not a word of notice or whisper of remonstrance is heard. Forest landlords feel that the opportunity must not be neglected. Inclosure proceeds with accelerated rapidity. And the Commissioner blandly replies to the expostulations of the Committee:—"As I could not sell the rights in the face of that resolution of the House of Commons, it was no use for me to inquire into the object of the inclosure. It would only have been putting the public to expense for no purpose." Even now, in 1865, he repeats that "if it were intimated to him that a man was inclosing a particular piece of land," he should do nothing to hinder him: "he will inclose if he wishes to do so, I cannot stop him. . . . I shall take no steps at all." Pressed whether it is not something more than a mere question of revenue, whether, for instance, he ought not to consider its bearing on the health of London, he replies: "I must repeat again that mine is simply a revenue department, and I cannot take into consideration, and legally do not take into consideration, any circumstances which influence *any particular section of the public.*" Perceiving his sublime indifference to such trivial considerations as the health of a mere particular section of three millions of the public, a member asks him: "But did it not strike you that it was your duty, yours being a revenue department, to preserve intact the crown rights?" and receives the complacent answer, "They are still alive, if the House of Commons were to rescind that resolution!" Which, being transdialected, might read thus:—It is my business to see that the forestal rights are maintained. I prefer to have them sold and done with: but the House of Commons says they shall not be sold. I can't sell them, therefore; but others may do what they like with them; I will not move a finger in their defence till the House confesses its fault and lets me take my own way.

It is a contest between Red-tape and the House of Commons, in which Red-tape will win, hands down.

A good deal has been said about crown rights and commoners' rights, but hitherto the rights which underlie them all, the rights of the public, have hardly been alluded to. What then are the public rights with reference to the forest? The committees of '63 and '65 ask the question in various forms. Mr. Howard, the commissioner of woods, who ought to be an authority, answers peremptorily, and repeats the answer, "None—none whatever." For over 600 years—Mr. Black, of the Record Office, says from before the Conquest—the public have been accustomed to resort to the forest, and never been obstructed in passing over any part of it. But this, says the warden's steward and solicitor, is no evidence of right: "They were permissive trespassers." Six or eight hundred years is a long range for permissive trespass. But the oracle is not dubious: "Yes, but they acquire no right." And legal decisions are quoted as sustaining this view.

And so we seem to have arrived at this: the public have used the forest, if not ever since there has been a forest to use, ever since there has been a public to use it. The crown has had unlimited rights over it as a forest from the Conquest, if not before. Householders within the forest bounds have had rights of pasture ever since houses have been there. And the lords of the soil have received or purchased their land subject to all these rights and usages. Yet, where it would seem clear as the sun that all parties have co-extensive titles, we arrive at the conclusion that only the last have any value. The public have no standing; they are here only on sufferance. The commoners have rights, but owing to "the ruinous cost of litigation," can't maintain them; the crown has rights, but won't defend them; and so the landlord steps in, and without a word ousts his copartners, and appropriates the property to his sole benefit.

Must this of necessity be so? Hardly, one would hope. Epping Forest is the last bit of our home forest left. If Epping Forest goes, all will have gone. Little, comparatively, remains of it, but that may well be cherished. Happily, the unambiguous "recommendation" of the House of Commons Committee (June, 1865), to be referred to presently, has for the moment arrested inclosure. It depends on what action will be taken by the House and the Government whether the check will be more than temporary. A little timely pressure from without may do valuable service. If decided measures be not at once adopted, Epping Forest will go as surely as Hainault Forest went a few years since, though perhaps not as noiselessly. But is Epping Forest after all worth making an effort to save? Have we not done foolishly, as the Honourable Commissioner suggests, in not letting it go quietly for the 12,000*l.* which the sale would have added to the public treasury?

If the extent to which the inhabitants of the east end of London resort to Epping Forest were really understood, there could hardly be a question about its preservation at any cost: whereas, in truth, there need be very little expenditure, all that is requisite being the refusal to sell forestal rights, and the making known the resolution to abate all encroachments. A witness, who had set himself the task of reckoning the numbers that resort to the forest on Sundays and Mondays, told the Committee that he estimated "the average number, supposing the weather to be reasonably fine, would be 50,000, . . . working people from the thickly-populated districts." On Easter Monday—the day of the once famous Easter Hunt, at which, in the old times, lord mayor and aldermen used to assist, and a living civic dignitary, Alderman Copeland, has seen "certainly 200 men in pink," now degenerated into a motley scramble, and this year ('65) compelled to shift its place of meeting, owing to the old place being inclosed—on Easter Monday the number is "not less than 200,000." Others gave even larger numbers, but such estimates are necessarily vague. They may, however, be safely taken as testimony that an enormous number of people resort to Epping Forest for a holiday. But it is not only on Sundays and Mondays that holiday-makers resort thither in great numbers. Large parties of school-children are taken there in vans as well as by train, and for them Wednesday is mostly

chosen: "it is a day that suits children; it is quieter." One van-owner told the Committee of '63 that he has been in the habit of taking these parties down there for twenty-five years: "I have had 30 or 40 in a day—different schools." He had once sent 60 vans, each van holding from 35 to 40 children. Very naturally he thinks large inclosures of the forest "would be a great deprivation to the working men of the metropolis, and a very great injury to our trade too in the summer."

It has been said that these holiday-makers do not penetrate far into the forest, and that for them it would be enough to have open spaces of moderate size at the chief places of resort. But this is a fallacy. The forest is so favourite a resort because it is a forest, and those who do not wander far within it know they could do so if they pleased, and regard it with the more respect in consequence. If it were a mere park or paddock, they would as soon go to Victoria Park or Battersea. And this is a sound healthy feeling, which it would be wrong to discourage. The more the pent-up myriads of London can be brought into contact with "free nature's grace," the better for them morally as well as physically. If the liking for holiday rambling in the green fields and forest ways were more developed, there would be less sotting at the road-side public-houses. Doubtless there may be seen far too much "tipsy mirth and jollity" among the holiday-makers at the forest inns; but the preventive for that lies in better teaching, not in uprooting the forests. It would be a mistake, however, to suppose that it is only in holiday crowds the east-enders flock to the forest. A genuine love of untrammelled nature is as strong among them as among any other section of Londoners, perhaps stronger. Solitary ramblers, young men two or three together, a father with a boy or two, humble naturalists searching for "specimens," butterfly and insect hunters, gatherers of rare ferns, moss and lichen collectors, botanists—in the least-frequented and most out-of-the-way nooks of the old forest you would meet them, plying diligently their several pursuits; and if you could induce them to talk, you would often find they had learned there more of nature's secrets than many a more pretentious professor had acquired from books. But how much the working classes of the east value their forest has come out also pretty strongly in their earnest and bitter speaking at the "indignation meetings" they have been holding, to protest against its demolition.

It is time, however, to turn to the sister forest. Hainault Forest—Henholt as it seems of old to have been called—comprised in 1851 about 4,000 acres of uninclosed land. The greater part of it was covered with lopped oak and hornbeam, as seems to have been the case all over Waltham Forest for centuries; but there were broad, wild, common-like tracts overgrown with gorse and ling, and in some parts, oak, ash, and beech grew unpruned and of great size. Hainault was reported by the commissioners, in 1792, to be particularly well fitted for the growth of oak for the navy. It was in Hainault Forest, it may be remembered, that the east-enders' famous saturnalia, Fairlop Fair, was held, "on the first Friday in July," originally under the spreading branches of a huge oak.

"It was eight fathoms round, spread an acre of ground."

as the old Fairlop song told; and was devoutly believed by the fair-goers to have received its designation from Queen Anne, who once visited it, when, somewhat unpoetically,

> "After viewing it round from the bottom to the top,
> She said to her court, that it was a Fair-lop."

Unlike Epping, nearly three-fourths of Hainault Forest, technically known as the King's Woods, belonged to the crown, Henry VIII. having reserved for his own pleasaunce this manor of the monks of Barking, when he deprived them of house and lands: and being crown property it had been little encroached on, though utterly neglected. In 1851 it was as wild a little forest (about ten times as large as Hyde Park) as one could hope to meet with within a dozen miles of such a city as London. But in that year it was resolved to disafforest it. An Act was obtained by the Government giving the necessary powers to remove or destroy the deer, cut down the timber, inclose and appropriate the land, make roads, and grant compensation for the loss of forestal and common rights. By award of the commissioner appointed to carry out the provisions of the Act, the crown received (Nov. 1852), in lieu of its forestal and other rights, an allotment of 1,870 acres. Other portions of the land were about the same time awarded, but its ultimate apportionment was not effected till 1861, or 1862, under the provisions of a second Act, passed in 1858, when the remainder of the King's Woods was divided among the forest parishes and landowners.

The entire area ultimately obtained by the crown amounts to 2,040 acres (three and a half square miles), forming a compact estate north of Aldborough Hatch. According to the Hon. C. Gore, the commissioner of woods and forests under whose care the property was placed, when allotted to the crown it was an open tract, thickly covered with timber and underwood. "I think there were upwards of 100,000 trees, oak, hornbeam, and the like;" but the soil was "in a very wet state, totally unproductive of anything but timber." The work of reclamation commenced in August, 1853. By the Act of 1851 the crown took the whole of the timber over the King's Woods. This sufficed to pay the entire cost both of the disafforesting, and of the subsequent works. The timber on the 969 acres of common allotments produced nearly 21,000*l.*, and defrayed all the preliminary expenses, compensations to officers (among whom the warden received 5,000*l.*), commoners, &c. The crown allotment was cleared of its timber, thoroughly drained and fenced, converted into a farm, and "excellent farm buildings erected;" the cost, about 42,000*l.*, being covered by the proceeds of the timber felled on the estate, and a small balance left in hand. The farm itself, "the Crown Farm," as it is called, was let on a lease for thirty-one years, at a rental of 4,000*l.* a year. Prior to the Act of 1851, the income from the occasional cutting down of timber in the King's Woods was about 500*l.* a year.

Regarded as a matter of revenue—and the Board of Woods and Forests steadfastly refuses to admit that it has any other functions than those of "a department of revenue"—the conversion of the crown lands in Hainault Forest into a farm, must be considered as a

profitable transaction. Whether for the sake of a profit of 3,500*l.* a year, it was worth the while of a nation, with an income like that of England, to destroy a forest which all the wealth of England could not replace, which in many respects was unique in its beauty, and which was the resort every summer of hundreds of thousands of the classes most needing a pleasant and easily accessible place of healthy recreation, is a matter which even the hardiest political economist might hesitate to affirm. Be that as it may, the board in their wisdom have effected a marvellous transformation in the aspect of the place. The other day it was a woodland waste, densely covered with trees—as may be supposed from the sum they produced—in parts, as the commissioner said, "in a very wet state" (though that was rather the consequence of the commissioners' neglect of all drainage, than any peculiarity of the soil), but everywhere affording the most delicious strolls, and even in its moistest hollows abounding in trees, richly clothed with many-coloured lichens, golden and crimson-spotted fungi, "and creeping mosses and clambering weeds." Now you have a level tract, over which the eye wanders unchecked and unrelieved, laid out in formal rectangular plots, and intersected by long, straight roads, without so much as a field-path to break the oppressive monotony, or enable you to escape for a few minutes from the choking dust, or a tree to shelter you from the scorching heat, a flower to stoop to gather, or a song-bird to listen to. There are farm buildings indeed, but they are designed after the type of a factory, before factories were made ornamental; and a block of labourers' dwellings, but in their naked propriety more like the prim, charity-stamped building of some philanthropic institution, or the "model cottages" of Kennington and Shadwell, than the picturesque, though probably less salubrious, cottages we are accustomed to associate with farm-houses and country walks. No doubt it is all perfectly correct, and exactly what a scientific agriculturist or a commissioner of woods and forests would have it to be; but to any one else, instead of being as it was, one of the most charming spots of its kind in the kingdom, it is one of the ugliest and most wearisome.

Of Hainault Forest there only remains to recall its ancient condition to the memory a wretched fragment near Barking Side, broken up in all directions by cart-ruts; two or three uninclosed strips by Chigwell Row, a pretty little bit of Crab-tree Wood on the way to Lambourn, and perhaps one or two outlying and miserable scraps.

A glance at a few of the other open spaces around London will show how much they too are in danger of diminution, defacement, or even destruction. Take first Blackheath as a spot every one knows, and which being in good part royal property, and in close proximity to Greenwich Park, would be thought as safe as the park itself. Yet any one who has visited it lately must have been struck with the increasingly desolate appearance it presents. It is being built up to on all sides, but there does not seem to have been any actual encroachment on the heath itself—though the language of some of the witnesses before the Committee of '65 would bear that interpretation. The injury has rather been to the appearance of the heath, by enormous excava-

tions made in search of gravel, the pitching of manure and dirt heaps, the erection of huts, stalls, piggeries, &c. One of the most recent gravel pits was stated to be 700 feet long and 70 broad, and Professor Airy described the pits as being dangerous as well as unsightly—"they are worked in perpendicular holes, some of which come very near to the footpaths, and apparently, if that state of things goes on, there will soon be no safe footpaths across the heath." The heath becoming worse and worse, seeming, in fact, as a witness described it, to be in course of rapid destruction, the residents appointed a deputation consisting of Professor Airy, the Astronomer Royal, the Vicar of Greenwich, Admiral Hamilton, and other gentlemen whose standing might well give weight to their representations, to wait on the Commissioner of Woods and Forests in April, 1863, and call his attention to the state of the heath, with a view of providing a remedy—the primary object being to induce the board to withdraw its licence for the digging of gravel. An association formed for the improvement of Blackheath had some six years earlier addressed a letter to the commissioner to the same effect. To both the reply was virtually the same. "As far as we could ascertain," says Professor Airy, "there was no power, and also, I think, no inclination" to make the concession. It was exactly the old forest story: the Board is a department of revenue, and must make the most it can of the crown property. The commissioner replied to the letter of the association: "I do not think that I should be warranted in discontinuing the working of gravel in that pit, as *a considerable revenue* is annually derived by the Land Revenue of the crown from this source." Before the Committee of the House of Commons Mr. Gore was asked what was received from this source of revenue: he replied, "I think, upon an average, taking the last ten years, 56*l.* a year"—less 2*l.* 2*s.* taken by the receiver. So that the country receives the considerable revenue of 53*l.* 18*s.*, for which the man who rents the pits is allowed to take as much gravel as he likes in the course of the year, and the beauty of the heath to be destroyed.

The northern rival of Blackheath—more than rival, for it is larger and more beautiful—Hampstead Heath, has suffered to quite as great an extent as Blackheath from excavations—here made for sand. The surface of the northern part of the heath is almost destroyed; heights have been levelled, trees undermined, and the gorse over a wide space extirpated. Here, however, no Board of Woods and Forests is in fault. The heath is the property of Sir Thomas Maryon Wilson; and the sand produces a rental of about 250*l.*—the person who digs the sand being allowed to take it from where he pleases, so that he does not exceed the quantity stipulated. But even a more serious danger than the disfigurement of the heath looms in the distance—its possible conversion into sites for building. Sir Thomas, as is well known, has made more than one unsuccessful application to parliament for powers to grant leases for 99 years for building upon parts of his estate contiguous to the heath, but not the heath itself. He now, however, distinctly states that he never would bind himself not to build on the heath; asserts his absolute right over it, and his intention to "see what I can do to turn the heath to account, and get what I can."

And he explains what he "means by turning it to account." "I might build an Agar Town there upon 21 years' lease." One may hope there is no danger of anything of the sort, but it is by no means certain. Sir Thomas believes he has the power to build *on* the heath without applying to Parliament. "Of course I can, by granting or by taking land forcibly; and then who is the party to oppose me in anything I may do? If I build where the sand is dug out who could interfere? There would be a great outcry of course." As to any right the public may have upon Hampstead Heath, "I conceive that they have none whatever, any more than they have upon my property at Charlton"—that property, of course, being inclosed and cultivated. The heath he considers private property, if wanted by the public to be paid for at the same rate as private land adjoining.

The Wimbledon people were put in a flutter last year by the application to parliament of Earl Spencer for powers to inclose Wimbledon Common by a railing, and lay it out in an ornamental manner. But it was not his lordship's intention to build over more than a small portion of the common; the main portion of it he would have dedicated to the public. The Wimbledonians were, however, quite right in opposing the bill. If it had been carried the common would have been converted into a sort of park, and restrictions put upon the hours of admission, &c. That sort of thing is not wanted at Wimbledon. Richmond Park is at no great distance; no other is required. Quite enough restraint has been put upon the use of the common by its employment for the volunteer practice and annual competition—and to say the whole truth, no little injury done to its appearance. That can be cheerfully borne on account of the excellence of the cause; but at the same time it becomes the more desirable that there should be no further meddling with it. Lord Spencer withdrew his bill in an excellent spirit, and it is to be hoped that an arrangement will be come to by which his proposition for the improvement of the common and its dedication to the public may be carried out. The condition of the neighbouring commons of Putney and Wandsworth—the former of which has been fearfully skinned of its turf, and the latter almost destroyed—and of which Earl Spencer is lord of the manor, shows the necessity for coming to terms if possible. Fifteen or twenty years ago Wandsworth Common was as pleasant and rural a common as any near London. Then a bit of land was taken for a garden and a house, a railway cut through it, next a prison was built on it, a great workhouse, an orphan asylum, &c.; gravel was dug "in extraordinary quantities," excavations were made for railway ballast—until, as was stated to the committee, "Wandsworth Common is a morass now." A few years back there were public footpaths all over it, now there is but one, and that is scarcely passable in winter; in short "the common is now practically not useable by the public at all; it is full of pits and water."

Clapham Common, on the other hand, is preserved in an admirable state; but that is owing to the resident gentry having taken a lease of it from the lords of the manors of Clapham and Battersea, and drained and maintained at their own expense: when first taken "it was in a deplorable condition." Colonel Bowyer, the lord of Clapham

manor, is willing, for a moderate rental, to make over his portion of the common in perpetuity to the public; and probably Earl Spencer would enter into a similar arrangement for the other portion. Barnes Common is in like manner looked after by the resident gentry, and has only suffered from that which nothing can escape—a railway and the cemetery.

Tooting manor having found a new master two or three years ago, Tooting Common seemed in danger of falling into the hands of the builder. But the inhabitants of Tooting took up the matter with spirit; gave notice that they would maintain their rights of pasturage, and defend the actions commenced for trespass. Ultimately a compromise was arranged, by which the lord of the manor agreed to give up one-half of the common, to be dedicated to the public for ever, on condition that the other half should be his absolute freehold, he undertaking not to inclose it or build upon it for twenty-one years. Some difficulties were interposed by the Inclosure Commissioners, but these, it is expected, will be surmounted.

We might proceed to other heaths and commons somewhat further from the metropolis, but we should find only a repetition, with variations, of what we have already seen, and illustrations enough have been adduced to bear out the assertion that the time has come to grapple resolutely with the question whether such of the open spaces as remain around London, and have hitherto been freely enjoyed by its inhabitants, shall be preserved for the public use, or be permitted to be inclosed, one after another, for cultivation or building.

The Committee of 1865, to which reference has been so often made, wound up their labours by the presentation of an elaborate Report, in which, assuming the desirableness of preserving these open spaces, they recommend to the House of Commons the repeal of the Statute of Merton, which affords the lords of manors great facilities for effecting inclosures, and "that no inclosure shall take place under the provisions of the Inclosure Act within the metropolitan area," which includes a circuit of fifteen miles round London. If these recommendations were adopted, the way would be cleared for legislation with a view to the preservation and improvement of our open spaces. With reference to the inclosures made in Epping Forest, the committee "find with regret that her Majesty's Government have taken no measures to assert the rights of the crown over such lands so inclosed, and recommend that they take immediate steps to vindicate the crown's forestal rights over such lands, and to abate such inclosures." This recommendation, if acted upon, would effectually stop the further destruction of the forest: it is of ill omen, however, that though its adoption was carried with only one dissentient, that dissentient was a member of the Government—Mr. Cowper. For the future the committee think "that in the exercise of the Crown's rights over open spaces within the metropolitan area, a different principle might be sanctioned, and that the Commissioners of Woods and Forests might be authorized to deal with such rights less with a view to making the utmost profit from them, than with a view to the advantage to be derived by the public from their use as places of recreation." To this paragraph also Mr. Cowper was a dissentient.

To carry out efficiently the principles they have in view, the committee perceive that the forests and open spaces must be removed from the control of the Board of Woods and Forests; and they recommend that "a special Board be appointed to act as trustees for the preservation of commons and open spaces within the metropolitan area." This board should be empowered to authorize drainage works, if needed, and where the inhabitants are willing to bear the expense, to settle a scheme for the supervision of such places, and where necessary, to sanction applications to parliament. "The board should have a *locus standi*, to be heard upon all railway bills, or other measures proposing to interfere with any such open space." Further: "the trustees should be authorized to accept grants of the rights of the crown, of lords of manors, and others interested in any forest, common, or open space in the metropolitan area," to deal with money obtained by parliamentary grant or private donation, to accept leases, &c.

The effect of this power to accept grants from lords of manors, &c., may be shown by an example. One of the most delightful spots in the neighbourhood of London is Banstead Downs. It is broad, breezy, and pleasantly undulating. The air is singularly pure, the view unobstructed. From the highest part the eye embraces such distant landmarks as Windsor Castle, Westminster Abbey and the lofty Victoria Tower, the dome of St. Paul's, and the rival heights of Highgate and Harrow. The railway recently carried across it has taken away some 40 or 50 acres; contractors have shot upon it vast heaps of "spoil from the railway," and other persons, seizing the opportunity, have considerably defaced it by wholesale cutting of turf. The lord of the manor finds himself unable to prevent the mischief, and declares that the common is in a "perfectly miserable" state. But this affects only a small portion of it. The entire area is 1,400 acres, and the lord of the manor, Thomas Alcock, Esq., the late member for East Surrey, offers, if such a board were constituted, to make over to it his rights in the soil, as a free gift, that the Downs "may be dedicated to the public as open land for ever."

Whether any, and what effect will be given in the coming session to those recommendations of the committee, remains to be seen. That at almost any cost these open spaces should be secured hardly admit of dispute. That the public have by the uninterrupted usage of ages acquired a moral and equitable right in them is certain, whatever may be the effect of recent judicial decisions founded on a narrow and exclusive view of the question. And equally certain is it that the owners of the soil have received or purchased their proprietorship subject to such use. We have in London a province of houses, and close packed within them a population equal to that of the whole of Scotland. For such a city an outer belt of free open spaces, where the meanest may feel that he may commune unrestrained with nature—that the common, the heath, and the forest over which he strays are as much his own to enjoy as the closed park is knight's or noble's—ought to be considered as much a matter of course as that parks and open places should be maintained within the city.

T.

V.—PHYSICAL CONSTITUTION AND FUNCTIONS OF THE SUN, AND SOURCES OF ITS HEAT AND ENERGIES, AS RECENTLY INVESTIGATED.—Third and concluding Article.

Configuration of the Solar Photosphere.—"Willow-leaves" and "Rice-grains."—New researches on the Sun-spots.—Probable action of the planet Venus in relation to the Spots.—Physical nature of the Solar Clouds, called "Luminous Prominences."—Sir J. F.W. Herschel's suggestion of the cause of the Solar Energies.—The writer's views on the subject.—Uniqueness and Peculiarity of the Position and Functions of the Sun.—Necessary inferences.—The Stars the most ancient objects in the Universe, the Centres of Creation, and the origins of the other classes of Heavenly Bodies.—The Sun the originating body of the Solar System.—Its cardinal peculiarity.—The Transition of Imponderable into Ponderable matter inferred to be the cause of the Solar Energies.—Distribution of Heat within the Sun.—Its relatively exterior regions in a state of ebullition.—The Spots caused by torrents of incandescent vapours.—Meteoritic masses, eventually becoming Meteors and Meteorites, inferred to result from the condensation of those vapours.—Partial verification of that inference by Mr. Sorby's microscopical researches on the structure of Meteorites.—Phenomena hitherto supposed to result from the fall of Meteorites into the Sun, probably occasioned by their projection from it.—Meteorites coalesce into Planets.—The Minor Planets in process of aggregation into a greater Planet.—Adequacy of existing causes.—The Fall of Meteorites a continuation of the process of formation of the Earth.—The writer's views of Cosmical Theory virtually the inversion of those of Mayer, but parallel with them from a certain point.—The Zodiacal Light.—Pretensions of the writer's views.—Solar Chemistry.—Stellar Chemistry.—Spectroscopical researches of Mr. Huggins on the Stars (proving the Sun to be a Star).—Clusters of Stars, and irresolvable Nebulæ.—Authorities consulted.—List of Mayer's Essays.

The knowledge of the superficial structure and configuration of the solar photosphere—of that exterior region of the sun from which light and heat immediately proceed, and the surface of which is all that the unassisted eye can perceive of the luminary, except in those cases in which a sun-spot possesses sufficient magnitude to be visible to the naked eye, as in the case of a spot which has now been seen for some days (October 4th, 1865)—can scarcely be said to have been much augmented since Mr. Nasmyth (Companion, 1864, p. 22–25) announced his observation of the bodies he called the willow-leaves. His later statement, of their variation in form and magnitude, has been mentioned already (Companion, 1865, p. 69). In a letter to the writer of these articles, he described four different forms of these bodies: 1st, the original form, the type of the penumbral striations (Companion, 1864, p. 22); 2nd, a form shorter and wider, found in the details of the bridges, &c. (*Ib.* p. 22, 25; present article, page 77); 3rd, a still shorter form, found on the borders of bridges and on the margin of the photosphere; 4th, the "rice-grain" particles, which have been independently observed by Mr. Stone, the first assistant in Greenwich Observatory.*

"The 3rd and 4th forms," according to Mr. Nasmyth, "constitute the entire luminous photosphere." This last observation would appear to reconcile many conflicting statements, and to indicate that, except in the case of the convergent striations of the penumbræ of spots—the *thatch* of Mr. Dawes—the bodies described by Mr. Nasmyth are identical with those which have long been observed by astronomers as characterizing the entire area of the sun's surface. This is the opinion of some practised observers, having excellent and powerful telescopes, who have recently directed them to the sun. These bodies also will be

* See 'Astronomical Register' (for April, 1864), vol. ii. p. 81.

the upper or outer surfaces of the peculiar *clouds*, of which, according as well to some new researches in solar physics we shall presently describe as to previous conclusions, the photosphere consists. Mr. Nasmyth is understood to have constructed a telescope having a silvered-glass speculum of great diameter, for the purpose of definitively settling the question of the reality and peculiarity of the solar structure, which he believes he was the first to recognise in its true character.

Probably the most important contributions to the knowledge of the sun-spots themselves, which have been effected since the publication of Mr. Carrington's, of which an account was given in our first article (Companion, 1864, p. 42–44), are those in which the President of the Royal Astronomical Society of London, Mr. De la Rue, resuming his photographic observations in aid and verification of telescopic research, has taken a principal part. The materials for these consisted, first, of the original drawings of sun-spots made by Mr. Carrington himself, extending from November, 1853, to March, 1861; and, secondly, of the pictures of the sun taken by means of the instrument which has already became famous in the annals of celestial photography, called "the Kew-heliograph." The plan of this instrument was originally suggested by Sir John F. W. Herschel for continuously recording the aspect of the solar disc, especially with regard to the phenomena of the spots; and the apparatus was constructed under the superintendence of Mr. De la Rue. In the years 1858 and 1859, pictures of the sun were taken by it at the Physical Observatory of the British Association, at Kew. In July, 1860, it was in Spain, doing service at the total eclipse, especially with respect to the clouds of the exterior atmosphere of the sun, termed the luminous prominences, as recorded in our first article (Companion, 1864, p. 44). From February, 1862, to February 1863, the instrument was in continuous operation at Mr. De la Rue's private Astronomical Observatory, at Cranford, near London; and from May, 1863, to 1865, it has been in continuous operation at Kew.

The results of the examination and intercomparison of these drawings and photographic pictures, as well with each other as with a series of observations made by Schwabe, of Dessau (to whom the honour of discovery of the ten-yearly period of the sun-spots is due), were communicated to the Royal Society on January 10th, 1865, in two series of 'Researches on Solar Physics,' by Mr. De la Rue, Mr. Balfour Stewart, Superintendent of the Kew Observatory, and Mr. Benjamin Loewy, also of that establishment. The first of these, 'On the Nature of Solar Spots,' was read on January 26th. In this the authors attempted to answer the questions: "1. Is the umbra [including, we apprehend, the true nucleus as well as the 'cloudy stratum' of Mr. Dawes] of a spot nearer the sun's centre than the penumbra, or, in other words, is it at a lower level? 2. Is the photosphere of our luminary to be viewed as composed of heavy solid or liquid matter, or is it of the nature either of a gas or cloud? 3. Is a spot (including both umbra and penumbra) a phenomenon which takes place beneath the level of the sun's photosphere, or above it?" An account of the method of investigation in each case is given in the paper. The first question is answered in the affirmative; thus, by a

crucial inquiry, confirming the original conclusions of Wilson and Sir William Herschel (Companion, 1864, p. 40).

With respect to the second question, it is observed by the authors that the great relative brightness of the faculæ near the limb, leads to the belief that these masses exist at a high elevation in the solar atmosphere, thereby escaping a great part of the absorptive influence, which is particularly strong near the border; and this conclusion was confirmed by certain stereoscopic pictures produced by Mr. De la Rue (Companion, 1864, p. 39), in which the faculæ appear greatly elevated. It was remarked that faculæ often retain the same appearance for several days, as if their matter were capable of remaining suspended for some time. A table was constructed, which is given in the paper, showing the relative position of the sun-spots, and their accompanying faculæ, for the Kew pictures available for the purpose. From this it appeared that, out of 1,137 cases, 584 have their faculæ entirely or mostly on the left side, 508 have it nearly on both sides, while only 45 have it mostly to the right;—the sun's rotation, it will be remembered, being from left to right. It would thus appear as if the luminous matter, being thrown up into a region of greater absolute velocity of rotation, fell behind to the left; and we have thus reason to suppose that the faculous matter which accompanies a spot, is abstracted from that very portion of the sun's surface which contains the spot, and which has in this manner been robbed of its luminosity.

Again, there are a good many cases in which a spot breaks up in the following manner: A bridge of luminous matter, of the same apparent luminosity as the surrounding photosphere, appears to cross over the umbra of a spot unaccompanied by any penumbra. There is good reason to think that this bridge is above the spot; for, were the umbra an opaque cloud, and the penumbra a semi-opaque cloud, both being above the sun's photosphere, it is unlikely that the spot would break up in such a manner that the observer should not perceive some penumbra accompanying the luminous bridge. Finally, detached portions of luminous matter sometimes appear to move across a spot without producing any permanent alteration.*

"From all this it was inferred that the luminous photosphere is not to be viewed as composed of heavy solid or liquid matter, but is rather of the nature either of a gas or cloud, and also that a spot is a phenomenon existing below the level of the sun's photosphere."

The last deduction is in agreement with the remarks made in our first article (Companion, 1864, p. 40), on Kirchhoff's views of the constitution of the sun, and is conclusive evidence that the spots are not, as supposed by him, clouds existing in a region above the photosphere. But with respect to the physical constitution of the latter, while the writer has nothing to urge against the inference that it is of the nature of a cloud (page 80)—a mere gas it cannot be, from its intense luminosity†—he is disposed to believe that, on account of the unique combination in the sun of gravity and heat (page 89), a *solar cloud*, of the order of those clouds which constitute the photosphere, could we have

* These, perhaps, are some of the meteoritic masses alluded to in page 92.

† Mr. Balfour Stewart is himself of opinion that the luminosity of the photosphere is not inconsistent with the belief of its merely gaseous nature.

it before us on the earth's surface, but retaining all its solar properties, would prove to be in its physical nature more like a mass of glass, or of ice in the colloid state, than any other terrestrial objects.

The paper concludes with "theoretical considerations more or less probable. Since the central or bottom part of a spot is much less luminous than the sun's photosphere, it may perhaps be concluded that the spot is of a lower temperature than the photosphere; and if it be supposed that all the sun's mass at this level is of a lower temperature than the photosphere, then we must conclude that the heat of our luminary is derived from without."

The writer, as his readers will be prepared to expect, is constrained to interpret all these phenomona exactly in the opposite direction. He believes the (apparently) much inferior luminosity of the central or bottom part of a spot to that of the photosphere, to indicate that in fact the nucleal region of the sun so seen in the spot is of a higher temperature than the photosphere; "and if it be supposed that all the sun's mass at this level is of a *higher* temperature than the photosphere, then we must conclude that the heat of our luminary is derived from *within*," in accordance with the views stated in pages 86 and 89.

The second series of these researches, "On the behaviour of sun-spots with regard to increase and diminution," was read on February 2nd. One of the authors, Mr. Balfour Stewart, had been led, from a preliminary investigation in pursuance of an idea which had occurred independently to Professor Tait, of Edinburgh, and himself, to suspect that the behaviour of sun-spots in this respect refers to some extraneous influence; and in a paper read before the Royal Society of Edinburgh, on the 18th of April, 1864, describes the results of an examination of all the solar autographs made at Kew and Cranford, which were then available for that purpose, with the view of detecting, if possible, some reference to planetary configurations in the behaviour of sun-spots. He found that, as far as might be gleaned from these records, the planet Venus "is especially influential in *promoting* the formation of spots for that portion of the sun's surface which is receding from her, and in arresting this formation for that portion which is approaching her." Similar effects, attributable to Mercury and Jupiter, were sought for, but not detected.*

The three authors now resolved to investigate the behaviour in this respect of the spots which had been observed by Mr. Carrington, in addition to those recorded in the Kew photograms, up to the date of their communication, embracing together a period of ten years. The method of their examination is particularly described in the paper. They found that a tendency of spots to break out is followed by a tendency of spots to decrease after making their appearance, and conclude, therefore, that the presumed planetary influence on the sun moves faster than the earth; also that the behaviour of the spots varies too slowly to be caused by the planet Mercury, and that there is no sufficient evidence of an action due to Jupiter. But they describe the apparent action of Venus in their "results," which are thus stated:

"*Observed fact.*—Spots appearing about the same time on the sun's disk behave in the same manner as they pass from left to right."

* 'Transactions of the Royal Society of Edinburgh,' vol. xxiii., pp. 500—502.

"*Legitimate deduction.*—The behaviour of spots is influenced by something from without, and from the nature of the spot-behaviour the authors conclude that this influence travels faster than the earth; and finally, they find that the behaviour of spots appears to be determined by the position of Venus in such a manner that a spot wanes as it approaches this planet by rotation, and, on the other hand, breaks out and increases as it recedes from the neighbourhood of the planet, reaching its maximum on the opposite side."

"In conclusion, it is not meant in this paper to convey the idea that Venus is the cause of the ten-yearly period of sun-spots, but merely that there is a *varying behaviour* of spots which appears to have reference to the position of this planet, or, putting aside the influencing agent, appears to have reference to certain ecliptical longitudes."

This remarkable result bears directly upon the author's views relative to the physical nature of the sun, with which it may, at first sight, appear to be incompatible, but its real consistency with them will be shown in the sequel (see page 88).

To the account of the solar clouds hitherto seen only at total eclipses—the 'Luminous prominences'—given in the first article (Companion, 1864, pp. 44-46), and notice of them in the second (1865, p. 53), we have now to add that Mr. De la Rue, having compared his photographs of the eclipse of 1860, made at Miranda, in Spain, with those obtained by Padre Secchi, at Desierto de las Palmas, at an absolute interval of about seven minutes of time, found that the photographic images of the prominences, so far as they are common to the two series, "accord in their most minute details;" . . . "and this fact," he remarks, "while it strongly supports the conclusion that the protuberances belong to the sun, at the same time shows that there is no change in their form during an interval much greater than the whole duration of an eclipse." He also inferred from this comparison that the prominence called from its form the *mitre*, and designated in his Bakerian Lecture on the Eclipse by the letter I, presents another case of a "floating cloud," like that denoted by the letter C in his observations. That no change in the form of the prominences should have taken place in the interval alluded to, agrees with the fact that their general configuration remains the same during the years which elapse from eclipse to eclipse.

On this subject may be cited Sir J. Herschel's account of these phenomena, as presented in the preceding eclipse of July 28, 1851, when "similar rose-coloured protuberances were observed, one in particular, of a form quite decisive as to their cloudy nature, rising straight up vertically from the edge of the disc, and then suddenly turning off at a right angle . . . just as a column of smoke rising in calm air is often seen to be drifted off horizontally when it has attained such a height as to bring it to an upper current of wind. To complete the resemblance, a detached and perfectly insulated mass of the same rosy colour was observed at some distance from the drifted train, which was connected with another mass by a narrow red band or streak." Now the "detached and perfectly insulated mass," seen in 1851, is the same object as the "floating cloud" observed nine years afterwards, in

1860, and generally the identical configurations seen at the earlier date were included among those more perfectly observed at the later.

On the solar scale of magnitude even the changes of clouds are probably very slow when estimated by comparison with terrestrial changes, and may occupy many of our years. But it must be admitted that as certain clouds of the earth's atmosphere appear to be comparatively permanent, though really in incessant change (such as the *table-cloth* of Table Mountain), so the permanence in form, even through many years, of solar clouds, may be consistent with immense and incessant changes of the matter occupying the spaces marked out by them.

It has been stated (Companion, 1864, p. 45) that these solar clouds "may be regarded with some probability as arising from the exterior flames and condensed vapour or smoke (perhaps consisting of infinitesimally small particles of the metals believed to exist in the state of vapour in the sun's atmosphere) of the faculæ or their crests, agreeably to what we have seen reason to believe of the nature of the photosphere." In one of a course of lectures cited below (page 84), the writer has recently suggested and illustrated the "possible analogy of the solar clouds in molecular nature to the luminous tracks left in the earth's atmosphere by the passage of meteors." Those tracks he had before endeavoured to show* must consist essentially of incandescent solid matter in a state of minute division, resulting from the combustion or intense action proceeding in the flame which constitutes the visible meteor, and composed of the metals, combustible bases, their oxides, and other combinations actually found in the solid bodies or meteorites which in many cases fall upon the earth during or after the appearance of the meteor, varying as to their chemical elements according to those which have thus formed its nucleus.

The clouds of our own atmosphere, as is well known, are congeries of minute globules of liquid water at insensible distances from one another, floating in a mingled medium of air and uncondensed vapour, the temperature of the entire space occupied by the mass being nearly the same throughout after the visible cloud has been produced. In the case of the meteoric clouds, the immense difference of temperature between the flames of the meteor and the air it is traversing must be inferred to cause the immediate solidification of the matter existing in an aëriform state in the flames. But the conditions of temperature in the exterior solar atmosphere and clouds, it would appear, may correspond *mutatis mutandis* with those of the earth's atmosphere and clouds, so that the luminous solar clouds, assuming them to originate in the manner supposed, may consist of minute globules of liquid metals in an incandescent state. These solar clouds and the trails of meteors have here been compared merely as having probably an analogous constitution, but it is also probable that the two phenomena have a common origin, a subject, however, which must be reserved for another place (pages 84 and 99). Of course it would be agreeable to the Mayerian cosmogony to believe that the production of these clouds is one of the constant proximate effects of the fall of meteorites into the

* 'English Cyclopædia,' Division of Arts and Sciences, "Meteors, Igneous or Luminous," vol. v. col. 605.

sun. (Companion, 1865, p. 65). It will of course be understood that they are different in their nature from the clouds, if such they are, which constitute the sun's photosphere, as noticed above (page 77).

From the observed phenomena of the sun, we proceed again to the efforts of modern science to account for the unceasing supply of the enormous amount of force radiating from it, of which we become sensible, and which acts upon nature as light and heat and chemical action and solar magnetism, and as we have seen in both the preceding articles is the source of all terrestrial activities, excepting those absolutely of life itself, while it is also essential to the manifestation in nature even of these.

In our second article (Companion, 1865, p. 68-70.) we stated and briefly discussed the ascription of the solar energies by Sir J. Herschel, to *vital action*, as a last alternative of conceivable sources of them. It was unfortunate that when this master in science within the last three years re-stated his remarkable conception, he did not refer to its original enunciation in his 'Results of Astronomical Observations, made at the Cape of Good Hope,' published in 1847—now nearly twenty years since—as it would then have been appreciated as it deserves to be. We are not aware that it has been discussed, or even alluded to, by any other scientific writer. In the elaborate discussion of the apparent magnitude and comparative brightness of the stars, constituting the chapter on 'Astrometry,'* in that work, when considering the subject of the variable stars and the possible causes of their changes, with the probable evidence afforded by geology, that our sun is one of them having a comparatively long cycle of variation; he states in the following concise manner his views on the subject now before us, and the second of which is referred to in our present remarks.

"Of the exciting cause of the radiant emanations from the sun and stars we know nothing. It may consist, for aught we can tell, in vast currents of electricity traversing space (according to cosmical laws), and which, meeting in the higher regions of their atmospheres with matter properly attenuated, and otherwise disposed to electric phosphorescence, may render such matter radiant, after the manner of our own aurora borealis, under the influence of terrestrial electric streams. Or it may result from actual combustion going on in the higher regions of their atmospheres, the elements of which, so united, may be in a constant course of separation and restoration to their active state of mutual combustibility, by vital processes of extreme activity going on at their habitable surfaces, analogous to that by which vegetation on our earth separates carbonic acid (a product of combustion) into its elements, and so restores their combustibility. With specific hypotheses as to the cause of solar and sidereal light and heat, we have, however, no concern. It suffices that they must have a cause, and that this cause—inscrutable as it may be—does in several cases, and, therefore, may, in one more, determine the production of phenomena of the kind in question."†

* *Astrometry* is the mensuration of the relative apparent magnitude, actually of the relative *brightness*, of the stars.

† 'Cape Observations,' (par. 261) pp. 351—352. The reader will remember the per

This suggestion of the cause of the solar energies is at once most profound and exquisitely philosophical; and it is, in fact, the only mode yet put forth of accounting for their perpetuity, by a physical process, which is of the nature of a *vera causa*, or could possibly be true; while the circumstance that it still requires the maintenance of the vital-action-proper of the solar organisms conceived to exist is, we apprehend, a still greater merit, as evincing a still deeper perception of the truth. It is interesting also in another point of view. It will probably be the last vestige in science of the belief in the habitability by human and other organized beings, which Sir William Herschel's views of the physical constitution of the sun permitted him to attribute to it, which his son's filial reverence has thus retained, in a certain form, to the last; and which the uniformity in size and figure, at first ascribed by Mr. Nasmyth to the "Willow-leaves," occasioned Sir J. Herschel, from a peculiar apparent structural resemblance in them to the subjects of organic nature, more recently to revive.

Profound and philosophical as it is, we must, however, express our belief, that it is altogether inconsistent with the actual state of knowledge of the sun, and of the physical limitations within which alone the maintenance of organization is possible. But we have sufficiently discussed this subject in our second article, pp. 69-70. The arguments there adduced to show that the "willow-leaves" cannot be of an organic nature are equally applicable to the beings—regarded by an unmistakable implication in the passage just cited, to be *organized*—which are supposed to have the power by "vital processes" to restore to their active state of mutual combustibility, after combustion, the elements of the solar atmosphere from the combustion of which the heat and light of the sun are conceived to radiate.

But the fact that organized beings cannot exist upon the sun, nor *à fortiori*, within it, does not invalidate or impair the perception that its phenomena can only be accounted for by invoking a source of energy independent of Nature, a necessity which Sir J. Herschel expresses in a general form by his allusion to "vital processes." In the conclusion of our second article, p. 70, it was remarked: "The ascription of the sun's energy to vital action we conceive to be, as an approximation, an immense advance in the philosophy of the subject, and worthy of its author." The explicit statement of its nature we have now cited amply vindicates that opinion. LIFE, from which organization is derived, and the origin of which is purely Divine, is essential, it is implied, to the causation of solar phenomena. In some lectures on the source of the solar energies, to which we shall shortly refer (page 83), the view of the subject briefly suggested in that conclusion was entered into in a more particular manner, and its relation to Sir J. Herschel's, pointed out, agreeably to the discrimination with which our second article terminates.*

ception originally announced by Sir J. Herschel, that the "dynamical efficiency" of coal consists in an evolution of the solar rays received by the coal-plants of former eras, and laid up in the carbon, which by their chemical action, originally vital, they separated from the atmosphere, thus restoring its combustibility.—'Companion,' 1865, pp. 44—46.

* Professor Tyndall has drawn attention, in the second edition of his work on Heat

At the beginning of the second paper on the Sun (Companion, 1865, p. 42), the writer expressed his intention of reserving any general opinion on what may be called the Mayerian philosophy, though in the course of the account given of it he introduced a few critical remarks; but having been engaged in maturing, to a certain degree, the views which he has himself been led to entertain respecting the theory of the sun, and various points of cosmical and geological philosophy arising from or connected with it, he has endeavoured to form a judgment on the theory of Mayer and of his followers and disciples, as well as respecting various hypotheses conceived to be either comprehended in that theory, or to be disproved by the facts on which it is founded. In the months of March, April, and May of the last year (1864), he delivered at the London Institution a course of lectures "On Astronomical Physics, and on the Planets considered as Worlds," in which an expression of that judgment was introduced, but without any personal reference to Mayer or the men of science by whom his system has been reproduced or adopted. From the discussions which have recently taken place relative to the history of the doctrine of the conservation of energy on the one hand, and the attention, on the other, to the phenomena of the sun, to which the discoveries of Kirchhoff, respecting the chemical constitution of its atmosphere, and the observations of Carrington, Dawes, Nasmyth, De la Rue, and other observers on its photosphere and spots, have attracted both astronomers and physicists, it seems certain that for years to come the new cosmical philosophy, especially in relation to the physical history, constitution, and functions of the sun, will receive a large share of the attention of the world of science.

In these lectures, and in a revised syllabus of them printed for private use, the constitution of the sun, and the distribution of heat within it, together with the nature and equilibrium of its atmosphere or atmospheres, were stated or suggested, as they have been in the former articles, with the following additions:—"Probable conclusion that the sun consists of a central body or nucleus, of unknown nature and unknown intensity of heat, surrounded by three or possibly more concentric spherical envelopes or shells, also of unknown constitution, but related in their nature to the liquid and gaseous states of matter, and in which solid matter also appears to be continually produced, fused or dissolved, and reproduced, by a process analogous to freezing and thawing, especially in the outermost of

to the following introductory remarks by a Danish civil engineer, named Colding, a member of the Royal Academy of Sciences of Denmark, to a communication on the conservation of energy, of which he was an independent advocate, immediately subsequent to Mayer. They may be appositely cited in this place:

"The first idea I conceived on the relationship between the forces of nature was the following:

"As the forces of nature are something spiritual and immaterial, entities whereof we are cognizant only by their mastery over nature, these entities must of course be very superior to everything material in the world; and as it is obvious that it is through them only that the wisdom we perceive and admire in nature expresses itself, these powers must evidently be in relationship to the spiritual, immaterial, and intellectual power itself that guides nature in its progress; but if such is the case, it is consequently quite impossible to conceive of these forces as anything naturally mortal or perishable. Surely, therefore, the forces ought to be regarded as absolutely imperishable."—'Lond. and Edin. Phil. Mag.' (Jan. 1861.) Fourth Series, vol. xxvii, pp. 57—58. See also a remark by Prof. W. Thomson ('Companion,' 1865, p. 67, note).

these regions, called the *photosphere*, a resultant condition of mingled liquidity and vitreous solidity being established.* New optical researches of M. Chacornac corroborating the view here taken of the existence of a second and exterior atmosphere of the sun, with which former photographic observations of Sir John Herschel and of Mr. R. Hunt also harmonize. Possible analogy of the solar clouds in molecular nature to the luminous tracks left in the earth's atmosphere by the passage of meteors." (See pages 80 and 99.)

In the first article (Companion, 1864, p. 40) it has been stated that the discovery of Kirchhoff does not, in reality, invalidate the previous conclusions of astronomers respecting the physical constitution of the sun, and the particular nature of the spots. On this subject, the proposition which next follows, is made in the syllabus:—"The conclusions of astronomers respecting the structure of the sun, combined with those of solar chemists on the chemical composition of its atmosphere (affirming it to contain the vapours of certain metals which exist in the crust of the earth, and some of them in meteorites also), lead to the inference that the incandescent surface of the photosphere and not the interior nucleus of the sun, as alleged by Kirchhoff, would supply the continuous radiation required by Kirchhoff's theory of the dark lines in the solar spectrum." †

In the next propositions of the syllabus, the writer indicates a principle of investigation which he believes to be new, and which he would fain urge for the consideration of philosophers as the *rational* interpretation of the sum of the most obvious solar phenomena:—"The principle of philosophical investigation which should be applied to the sun, indicated by the primary induction from the uniqueness and peculiarity of its position and functions in the solar system, which is, that they imply a corresponding uniqueness and peculiarity in its constitution and powers, characterising also the nature as well as the disposition of the substances of which it essentially consists—but the particular density of the sun indicates that it actually consists both of ponderable and of imponderable matter—the nature of the former as constituting apparently its relatively exterior regions, believed to be made known in part by Professor Kirchhoff's researches in prismatic chemistry applied to the sun, as showing that some of the elementary substances of the earth exist also in the sun." (Companion, 1864, p. 36; 1865, p. 65; also page 94 of the present article.)

"First verification of the primary induction by the form of the sun, which, according to the observation of the equality of its diameters, is that of a perfect sphere, a form which is unique among the bodies of the solar system, and is probably unknown in terrestrial nature.—(Companion, 1864, pp. 20-21; also page 91).

"Evidence that in a physical sense the Stars are distant Suns, which, if they are also suns in an astronomical sense, or the centres

* See 'Astronomical Register' (for April, 1864), vol. ii. p. 75.

† See page 103. This is original, and was first stated in the syllabus of a lecture on the Sun, delivered to the "Stoke Newington Mutual Instruction Society," an association of the Society of Friends, on the 15th of January, 1864, reprinted in the 'Astronomical Register' for February, where also, p. 27, the inference is stated in a more explicit manner. The importance of this distinction, in the critical examination of Kirchhoff's theory of the Sun, it would appear, has not been adequately recognised by astronomers and solar physicists.

of planetary systems, must be characterized, each in its own system, by the uniqueness and peculiarity which characterize our sun in its system."

The subject of what in the most comprehensive sense we may term the "Theory of the Sun," is then noticed in the following manner:—

"Question recently discussed among philosophers as to the origin or source of the emanation of light and heat from the sun, and generally of all the energies it exerts, which, being perpetually consumed or absorbed in the system and stellar space around it, must eventually, it is assumed, be exhausted, unless perpetually renewed by some natural action.

"The opinion expressed and supported that the actual condition of science, including the newly-generalized and accepted doctrine of the conservation of energy, does not afford the means of answering that question, nor even of indicating a possible solution of it. All the notions which have been put forth (evincing the great ability, deep thought, and extensive and varied knowledge of their authors and advocates), with the view of assigning the source, proving the exhaustibility, or accounting for the renewal of the solar energies, whatever principles of scientific truth they may involve, or however certain may be the facts from which they are deduced, and accurate the reasoning with which the deduction is effected, still remain in the category of unverified hypotheses, having been founded originally on assumptions, which, though in some instances apparently reasonable, are *in respect of the* Sun in reality gratuitous; while they are also incompatible with the primary induction from the uniqueness and peculiarity of its position and functions as the centre of the system which it sustains and governs."

In the concluding lecture of the course, devoted specifically to the stars and their aggregations, the most important part of their history was treated agreeably to the following inferences:—"Entire absence of evidence or indication, agreeably to the facts of sidereal astronomy, that anything exists in the sensible universe which is of greater antiquity than the stars, or prior to them in its origin. Inferences deducible from this, considered together with the primary induction from the uniqueness and peculiarity of their position and functions as suns (page 84), tending to prove that, as a class, the stars are the most ancient objects in the creation, and also (each in his own sphere of action) the origins of the series of physical agencies and processes by which the planets and other classes of heavenly bodies were finally produced and are maintained."*

The theory of the sun was resumed in February and March of the present year, 1865, in some lectures (also given at the London Institution) "On the source of the Heat and Light, and other Energies of the Sun, and on the origin of the Earth and other Planets; embracing some principal subjects of Meteorology and Terrestrial Physics." In the introduction to the syllabus of this course, the

* It will follow, of course, that comets as well as the gaseous nebulæ of Mr. Huggins all originate from suns or stars. M. Faye has already connected the comets of the solar system with the clouds called the "luminous prominences;" on which subject, however no opinion is here offered.

subject of the preceding one was alluded to, as consisting of an outline of Descriptive Astronomy, and it was proposed to deduce from the facts which had been stated, "and from some principles of investigation arrived at by their consideration, as presented in the former course, some conceivable views, in conformity with our actual knowledge, relating to the source of the heat and light and other energies of the sun, and to the origin and formation of the planets, on which and subsidiary subjects original hypotheses, new to science, will be suggested for examination and verification. The cosmical views proposed will be founded on the facts which science has accumulated by the observation of nature—with one assumption, philosophically speaking — that of the existence of a Divine Personal Creator, who is discrete from his creation; agreeably to which assumption those facts, in their higher aspects, will be interpreted."

In the first lecture, delivered on February 9th, the primary subject of these lectures was treated in a manner thus concisely expressed in the syllabus:—"The sun, in the portion of space which is occupied by and in truth consists of the solar system—and the stars in the portions of space occupied by and consisting of them and their derivations respectively*—are the first manifestations of Divine Creative Power in the world of nature; being, each in and for its own system, the beginning and centre of creation, both in time and in space; and also the medium of the continued exertion of creative power, which in its descent or progress taking the form of the (inorganic) correlate forces of nature, remains the perpetual source of their activity, this being the reality of which the conservation of energy recognised in the present era of science is the appearance." And it having been argued in the preceding course (as above, page 84), that the new principle of philosophical investigation implied a uniqueness and peculiarity in the nature and disposition of the substances of which the sun essentially consists, corresponding to those of its position and functions in the solar system, it was now inferred that those substances constituted "matter"—of course, imponderable—"in its highest and most elementary character;" and "the production, formation, or synthesis of (ponderable) matter within or upon the sun (and within or upon all the stars or suns in the heavens) to be at once the proximate source of their energies, and the origin, universally, of material substances." In the second lecture, given on the 23rd of February, the subject was pursued in a more explicit manner, agreeably to the following propositions of the syllabus:—"The [perpetual] condensation, as a mediate act of Creative Power, of this highest imponderable matter into ponderable matter, or in other words the synthesis of the latter from elements of the nature of the former [page 89], conceived to be the proximate physical source

* On the subject of space *consisting* in part of the heavenly bodies, see 'English Cyclopædia,' Div. of Arts and Sciences, vol. vi., col. 496, where (in the article 'PHYSICAL FORCES, CORRELATION OF') *space* is defined "the extension of material substance, the resultant of its dimensions, and mere consequence of its existence; and motion the substitution of one portion of matter for another, identical with the succession of phenomena, our perception of which is *time*." See also the article 'VACUUM,' in the same work, vol. viii. col. 522.

of the heat and light and other energies of the sun. It will result that the distribution of heat in the sun is from within to without, in the order of decreasing intensity (as suggested in the lectures on Astronomical Physics delivered in 1864); but that even in the photosphere or most exterior envelope of the sun it immeasurably exceeds all terrestrial temperatures." (Companion, 1864, p. 50-51, and pages 88 and 113 of the present article.) In the subsequent lectures the other subjects announced in the title of the course, were treated in succession, but these will be most conveniently indicated in what now follows.

A view of the scientific part of the entire subject now before us, as distinguished from what may be termed in a peculiar sense the transcendental portion of it (of which the preceding notices will suffice for this place), was communicated to the Royal Society, on the 23rd of February, 1865, in the form of a paper entitled, "Inferences and Suggestions in Cosmical and Geological Philosophy," an abstract of which was read on March 23rd, and has appeared in No. 73 of the 'Proceedings of the Royal Society' (vol. xiv., pp. 120-129).

In this paper the primary induction from the totality of solar phenomena, and the proposed new principle of philosophical investigation, which, in the author's opinion, should be applied to the sun, were cited from the syllabus of lectures on Astronomical Physics, as they have been in the paragraphs above; together with the consequent implication relating to the nature and disposition of the substances of which the sun essentially consists, as follows, and the first obvious verification of the primary induction by its unique sensibly spherical form, as stated in the preceding pages.

The primary induction from the uniqueness and peculiarity of the position and functions of the sun (page 84), includes the consequence that of all inorganic existences in our solar system it is the highest in order, and the type of all below it (Companion, 1865, p. 70.); and further, that the substances of which it is essentially composed—which are themselves the first results of the supply of energy from within by which its unceasing activity is maintained—are in a corresponding sense peculiar, of as it were the highest, and, in a large philosophical meaning rather than a strict chemical one (though comprehending that also), most elementary character. The primary induction, accordingly, is opposed to what appears to be a cardinal error in modern cosmical philosophy—the notion that the sun is a body of the same general nature as the planets—consisting of the same chemical elements associated substantially in the same manner, and existing in the same states of aggregation; and being, in fact, as to its physical constitution, a kind of Planet itself, differing little from the other planets except in its position and magnitude, and partially in its temperature. It may be and probably is the formal type in conformity with which the bodies circulating around it are constructed, which on that account may have *analogies* with it, properly so called; but the whole of our positive knowledge, it is conceived, implies that there is no actual original community of nature between them and the sun. It will follow that the ponderable terrestrial elements, affirmed by Kirchhoff to exist in the sun, can be permanently present in

it only in their most exalted and *quasi*-elementary physical state, and are confined, as characteristic materials of the solar structure, to those regions of it which are most nearly contiguous to the planetary system.

All bodies having the power of radiation, whether planets themselves, or merely portions of them, represent the sun by the possession of that property (which is thus one of their analogies to it). But their reciprocal power of absorption it would appear, characterises their planetary or ponderable nature specifically; and if the property of absorption, or of being physically affected from without, exists in the sun, it can belong only to the ponderable matter constituting its comparatively superficial regions, being those which extend from the nucleus or nucleal regions to the outer surface of the photosphere. The uniqueness of the sun in every other respect, it is conceived, implies that it is essentially an originating body, and also—with the possible exception here admitted—exclusively a radiating or emissive one.

The action upon the Sun of the planet Venus, and the possible action of other planets, as inferred by the authors of the 'Researches on Solar Physics,' page 79, whether it be conceived to be gravitative or radiant—and if the latter, whether magnetic or not*—would be perfectly conformable to these views, in which the relatively exterior regions of the sun are thus regarded as consisting of ponderable matter, and to be subject, therefore, to all the physical laws and actions to which such matter is amenable.

The cardinal peculiarity of the sun, that in which it is unique in the highest sense, it was further stated, is that its radiation exclusively possesses the property of imparting to (inorganic) matter a fit condition for the manifestation of (organic) life (Companion, 1865, pp. 65-70; also present article, page 81); that it is, humanly speaking, infinite in amount, and also the source of all the heat and light, and consequently of all their derivative or correlate forces which are active in the solar system. The illustration of the temperature and expenditure of heat of the sun, founded by Sir John F. W. Herschel upon his own experiments and those of M. Pouillet, with Mr. Waterston's experimental result, that the potential temperature of an infinitesimal area of the sun's radiating surface is nearly thirteen millions of degrees of Fahrenheit's thermometer (Companion, 1864, pp. 48-51; 1865, pp. 58-59), are cited as being in fact nothing more than philosophical confessions that no proportion whatever can be established between any expression for the solar energies and the obvious reality of their incalculable amount.

The author proceeds to inquire what we may reasonably conceive to be the intimate nature of matter in its highest and most elementary character, such as that essential to the sun is in this paper

* The apparent double relation of the ten-yearly period of the spots to that of terrestrial magnetism and to the position of Venus, viewed in relation to the magnetism of the earth and the moon, as suggesting the universality of magnetic action among the bodies of the planetary system, and to the more recent researches of General Sabine, referred to in the last page of this article, seems to indicate that this planetary influence on the sun, is a portion of the "System of Cosmical Relations, in which," to use the words of the 'Magnetic Committee,' "the sun and the earth, and probably the whole planetary system, are implicated."

inferred to be, agreeably to the principle of philosophical investigation he has suggested as being alone applicable to the sun, and according to known facts and recognised principles of science. The answer to this question is afforded, he conceives, by modern views of the constitution of gaseous substances as forms of ponderable matters, and of that of the luminiferous ether as an imponderable body. It is deduced from the former, especially as recently generalised by Mr. Graham (the Master of the Mint, late Professor of Chemistry in University College, London),* combined with the investigations of the ether made by philosophers during the last half century, including those of the late Dr. Thomas Young and M. Cauchy, and of M. Neumann and Professor Stokes, that the ether is characterised by enormous molecular activity, rendering it immensely rarer, but at the same time more truly solid and elastic than any kind of ordinary or ponderable matter, all forms of which it pervades, even the most dense, sensibly co-existing with them in the same space. The author infers that the substances peculiar to the sun transcend the ether in these qualities in even a greater degree than that excels ponderable matter with respect to them; that is, succinctly, that pure solar matter is still more transcendently and intensely solid and elastic, because its particles are in still more transcendent activity. This inference is considered to harmonize with the obvious peculiarity of the sun, that, in it alone, of all the bodies and localities of the solar system, enormous force of gravity and an immeasurable intensity of heat are united.†

It being admitted (agreeably to the inferences already cited, page 86) that the stars are the origins of the series of physical agencies and processes by which the planets are produced, it follows that the original production of ponderable matter takes place in them—and in our sun as one of them—a conception to which the author had been led by the preceding and other considerations long before the application of prismatic chemistry to the sun.

The energy set free in the *condensation* within the sun, of the highest imponderable matter essential to it into ponderable matter,‡ and eventually into the metallic vapours which the observations of Kirchhoff and other spectroscopists have discovered in the sun and other stars, is inferred by the author to be, at once the exclusive proximate source of the heat and light and other energies of the sun, and (in our solar system) the only and universal origin of ponderable or ordinary matter, the absolute synthesis of which from its imponderable elements is thus believed to take place in the sun.

It will follow that the distribution of heat in the sun, as already inferred by the author (Companion, 1864, pp. 50-51; present article, page 78), is from within to without, in the order of decreasing

* See 'Phil. Trans.,' 1863, p. 385, *et seq.*

† The above is a very concise view of results arrived at by a somewhat elaborate train of reasoning. For this the author can at present refer only to the original paper as communicated to the Royal Society, and now deposited in its archives. He intends, however, to make it public in a still more detailed and explicit form.

‡ That this expression is not a solecism, nor the idea it conveys a contradiction, might readily be shown, in conformity with our actual knowledge, and with the present views of philosophers on the nature of matter; but the proof would require more space than could here be given to it.

intensity, an inference which he conceives to be not contradicted, but supported, by the apparently inferior calorific and luminous condition of the sun's nucleus, as disclosed in the true nuclei or inner umbræ of the spots, compared to that of every other visible part of the sun, and especially of the photosphere, because the exterior regions of the sun are composed entirely of that order of matter—ponderable matter, such as that of which the planets consist—which is alone capable of communicating to the ether of space those vibrations which we know as heat and light.

The *Cause and Nature of the Phenomena termed the Solar Spots*, are next considered. The energy arising from the transition of imponderable into ponderable matter, will in part become the centrifugal or projectile force by which the torrents of matter (finally assuming the gaseous form) so produced are impelled through the denser envelopes of the sun, causing the spots and phenomena of ebullition of which the photosphere is the scene.*

The rotation of the sun acting upon these torrents issuing from its interior regions—and probably from the surface of the solar globe disclosed in the true nuclei of the spots, or somewhat within that—by inflecting them towards the sun's equator as they rise, occasions the actual distribution of the spots which are their outbursts on the surface of the photosphere, in lines and belts parallel to the equator, their restriction in latitude to within a certain distance of it, and their absence, together with that of the *faculæ*,† both in the equatorial and polar regions of the sun. It would seem that the originally uniform evolution of aëriform matter from the entire surface of the interior globe, on being swept towards the equator from each pole, is broken up into torrents by the same general cause, and by the resulting inequalities of temperature, density, and consequent resistance in the surrounding and incumbent mediums. The region of equatorial calm, or freedom from spots and faculæ, is the result of the meeting and mutual opposition of the system of currents which the sun's rotation causes to proceed from either pole, the torrents being carried back in each hemisphere by movements of the nature of circular waves of translation seemingly affecting all the envelopes of the sun, and setting from the plane of junction at the equator towards the tropics.

The entire assemblage of actions now under consideration appears to be closely analogous to that exhibited by a liquid boiling violently and incessantly from a heated surface below, the gaseous matter evolved at which becomes partly diffused through the liquid by adhesion or mixture, is partly disseminated through it in bubbles which collapse at various depths, and partly escapes by effervescence at its upper surface. In the actual case of the sun, torrents more or less permanent, consisting either of bubbles‡ or of an unbroken stream of aëriform matter, are also formed by the operation of the controlling

* Mr. Carrington's observations on the sun-spots, as the writer has found by a particular examination of them since the communication of his paper to the Royal Society, present much clear evidence that they are phenomena of ebullition.

† See 'Companion,' 1864, pp. 23—34; 'Companion,' 1865, p. 54; present article, page 77.

‡ The recent distinction of true bubbles from *film-bubbles*, by Professor Guthrie ('Proc. Roy. Soc.' (for 1865), vol. xiv. p. 22) may probably have an important application

mechanical cause to which, acting in the second place, the entire system of phenomena presented by the spots is here attributed. These torrents are continually maintained from near the surface of origin on the glowing sphere within to that of the photosphere without, whether single or in groups of separate but probably often confluent streams, elevating the photosphere into faculæ by the force of expansion with which they burst upon it, and, being transparent, permitting the interior envelopes and the incandescent nucleus to be seen through them.*

The system of currents, necessarily produced by the heat-action in the inferior liquid mediums and photosphere, combined with those due to the sun's rotation, carry along with them the torrents and their bursting summits in the drifting motion observed by Mr. Carrington to affect the spots. The phenomena of the spots generally, especially as described by that astronomer, are in entire conformity with this interpretation of them. Their control by the sun's rotation was first perceived and announced by Sir John Herschel, in connection, however, with his cyclonic theory of their nature.

The observed spherical form of the sun† is considered to be maintained by the perpetual escape from its equatorial regions, by means of the ebullition of the spots, of matter, which, in consequence of the constant production of fresh matter upon the nucleus, and of the sun's rotation, would otherwise accumulate upon them, and so cause a sensible deviation from the spherical form. Being thus separated, it receives from the sun's rotary motion at the equator the form of the *zodiacal light*, which it constitutes, while the perpetual supply of fresh matter from the solar surface causes it to be, not a ring, but a lenticular mass, geometrically though not physically continuous with the originating central body, which it thus envelopes, no interval apparently being left between them (see page 97).

The next objects of discussion in the paper are the *Origin of Meteorites; Series of Physical Processes of which they are the result, and their Functions in Nature.* The vapours of metallic and other elementary matter evolved or discharged in the ebullition of the photosphere above considered, partly remain upon the sun, constituting its atmospheres,‡ but are principally aggregated into masses of immense

to the phenomena of the solar ebullition as here conceived. The bubbles which become meteoritic masses probably commence as simple or true bubbles, and acquire films as they rise to regions of a comparatively lower temperature. In any future comparison of the writer's views of the spots with the vesicular nature attributed to them by M. Wolfe, this will have to be borne in mind.

* The Rev. W. R. Dawes, to whose precise telescopic observations on the Sun and its spots we have had occasion frequently to refer, and M. Chacornac, have both attributed the character of volcanic eruptions to the action which produces sun-spots. But as Sir J. Herschel had before remarked, their motions on the disc entirely preclude the idea of their volcanic nature. The comparison, however, evinces that the two observers recognise the torrential nature of the sun-spot action. Mr. Dawes communicated a paper on the subject to the Royal Astronomical Society on the 8th of January, 1864, in the discussion on which the writer showed that Mr. Dawes's explanation of the phenomena of the spots was quite conformable to his own view of the distribution of temperature in the sun. It is indeed in perfect agreement with the theory of their nature and production given above.—See 'Monthly Notices' of the Astronomical Society, and 'Astronomical Register' (for February, 1864), vol. ii. p. 31.

† See 'Companion,' 1864, pp. 20, 21; also page 84 of the present article.

‡ 'Companion' for 1864, p. 46; for 1865, p. 53.

magnitude (terrestrially speaking) of the nature of bubbles, which having undergone a certain amount of condensation, first become visible as those particles, the collective brightness of which reveals to us the existence of the zodiacal light, being, in fact the matter separated from the sun's equator, as explained above. These particles, termed by the author *meteoritic masses*, are projected from the zodiacal light by the force to which its variable extension is owing, and are further gradually condensed during their passage through the interplanetary spaces into the liquid and solid state, constituting eventually the nuclei of meteors, which are finally precipitated upon the earth (and doubtless upon the other planets) in the form of meteorites or meteoric rocks.*

The sudden outburst of light over a solar spot, witnessed on September 1, 1859, by Mr. Carrington and Mr. Hodgson,† the author regards as a fact confirmatory of these views, and as having been the consequence or accompaniment of the production, and the transfer with immense rapidity, from within to without some exterior region of the sun, of a meteoric mass, or more probably of an immense congeries of such masses, enabled, by its consisting of ponderable matter, to manifest the higher temperature and consequent greater effulgence of the interior regions of the luminary whence it was originally derived. Certain phenomena before recorded by astronomers, but not yet understood, are probably of the same nature. Recently, Mr. Brodie and M. Coumbary have observed similar though less remarkable appearances.

In support of this hypothesis, of the immediate solar origin of meteorites, it was announced in the paper, and for the first time, the writer believes, that "the structural characters of meteorites are those of bodies which have been originally condensed from heterogeneous vapours—the mingled vapours of uncombined elementary substances variable in their nature and requiring different temperatures for their maintenance in the gaseous form, but all existing originally at a very high temperature; and their adequate investigation," it was suggested, "may afford, as an *experimentum crucis*, an independent confirmation of Kirchhoff's discovery, and of the truth of the spectrum-analysis of the composition of bodies distant from us in space."

This induction has since been confirmed, and the hypothesis itself to a certain extent verified in a remarkable manner. Mr. H. C. Sorby, F.R.S., having extended to the study of meteorites the new principles of investigation, founded on facts observed by the microscope, which he had previously applied with so much success to that of terrestrial rocks, has thus summarily stated the result, on this particular point, in a note "*On the Physical History of Meteorites*," privately printed for distribution in July, 1865, as the preliminary notice of an intended communication to the Royal Society:

* See present article, p. 100.

† Particularly described in 'Companion' for 1865, pp. 63—65. It will be observed that what the Mayerian cosmogonists appeal to as evidence of the actual fall of a meteorite into the sun, and therefore as confirmatory of their views, the author interprets in a diametrically opposite manner, as the projection of a solar bubble, or meteoritic mass, out of the sun. Whether the direction in which the body of light was seen to move was actually towards or from the surface of the sun, cannot be determined from the observations. The interpretation of the phenomenon, therefore, will necessarily be according to the views of the solar nature which may be entertained.

"A most careful study of their microscopical structure leads me to conclude that their constituents were originally at such a high temperature that they were in a state of vapour, like that in which many now occur in the atmosphere of the sun, as proved by the black lines in the solar spectrum."

Some of Mr. Sorby's subsequent conclusions are closely parallel to those of the author, as stated above. "On cooling," he continues, "this vapour condensed into a sort of cometary cloud, which was in a state of great commotion." This "cometary cloud" is manifestly identical in nature with the bubbles or volumes of gaseous matter consisting of the vapours of metallic and other elementary substances, which, having undergone a certain amount of condensation, are conceived by the author to be projected from the sun and through the zodiacal light; and their gaseous contents having constituted, according to his views, the torrents causing the phenomena termed the solar-spots, in the stupendous ebullition of the photosphere, they must necessarily be "in a state of great commotion," which would be retained long after their projection from the sun.

Mr. Sorby finally "concludes, provisionally, that meteorites are records of the existence in planetary space of physical conditions more or less similar to those now confined to the immediate neighbourhood of the sun," at a remote cosmical period; a conclusion which he identifies with "a modified nebular hypothesis."

These physical conditions of planetary space at a former period are those which the author attributes to the interior regions of the zodiacal light as existing now, and of the actual nature of which meteorites may be regarded as perpetual records (see p. 90). But he believes it may be shown, by a strict process of reasoning, that one of the necessary results of the "uniqueness and peculiarity of the position, powers, and functions of the sun, as the physical centre of the solar system," is, that such conditions must in the nature of things have been from the beginning, and must ever be, confined to it and its immediate vicinity; that they never have existed, and cannot exist, anywhere else in the solar system, or in the space which it now occupies. Of the presence of the conditions requisite for the genesis of meteorites within, upon, and immediately around the sun, we have actual and ample evidence, quite independent of that which may be derivable from meteorites themselves. But all that can be said in support of the notion that such conditions could ever extend to distances from the sun comparable to those of the planets, is to adduce the very facts to account for which that notion is brought forward, or refer to what are supposed to be the probabilities of the nebular hypothesis hitherto unverified.

The author deems himself justified in affirming that Mr. Sorby, by his microscopical observations of the structure of meteorites, has verified the hypothesis of their origin and formation which has been stated in this article, through a great part of their genetic history—to the extent that is, of their condensation from separate volumes or masses (believed to be originally solar bubbles) of aëriform matter, consisting of the mingled vapours of their chemical elements, at a very high temperature, in intense commotion, and existing, or having existed, in planetary

space somewhere between the sun and the earth.* He entertains also the strongest conviction that by the pursuit of what he has elsewhere termed meteoric astronomy, combined with the study of meteoric rocks, it will eventually come to be seen, in conformity with the deductive cosmical hypothesis he has advanced, that no other than a direct solar aëriform origin can be attributed to meteorites, and that this in reality will be found to be implicitly revealed in their material nature and structure, and the meteoric phenomena preceding or accompanying their fall. And he will further record the opinion that, after this implication shall have been established, and at some subsequent period in the history of science, it will be found to have involved the physical demonstration of his Theory of the Sun, so far at least as the proximate source of its energies in the synthesis of ponderable matter is concerned.

The functions in nature of meteorites, or rather of meteoritic masses, are conceived by the author to be those of producing the planets, by their coalescence, successively into greater and greater masses, until adequate planetary magnitude is attained.† The group of eighty-five minor planets, now known to revolve between the orbits of Mars and Jupiter, are regarded to be such masses in an advanced intermediate state, between the condition of (unfallen) meteorites and that of true planets, in process of gradual convergence towards each other, preparatory to their coalescence into one greater planet, contrary to the prevalent notion of their having formerly constituted one heavenly body which has been reduced to fragments; all their phenomena believed to support that notion being equally capable of explanation in agreement with the theory now announced. It is remarked, in support of this theory of the formation of the planets, that the only known phenomenon in which the process of the formation of the earth as a planet is actually observed is that of the fall of meteorites upon it, by which its magnitude is augmented, and that by the addition of materials homogenous with those of its existing elementary composition, being chiefly those chemical elements which are present in the greatest quantity in the earth's crust, and seem to be most essential to its constitution.‡ According to the principle of the adequacy of existing causes, therefore, it is inferred we must conclude that the

* Mr. Sorby's views have been compared with his own, at greater length, in a paper printed for private distribution, from which the principal statements above are extracted. The views of both will be found in the Appendix to the Report of the Committee on Meteors in that of the British Association for 1865, which will be published next year. In the mean time a brief notice of them, derived from the Report of the Committee, may be seen in the 'Athenæum' of Sept. 16th. The subject will probably be returned to in the Report for next year, 1866, which will appear in 1867.

† These views were also stated in Lectures iv., v. and vi. of the course delivered at the London Institution in 1865, on the 9th, 26th, and 31st of March.

‡ See 'Companion,' 1865, p. 65, where the apparent non-existence in the sun of oxygen and of the non-metallic combustible silicon, both abundant in the earth as well as in meteorites, is noticed. "It cannot be doubted, however, that by the further prosecution of spectrum-analysis other elements will be discovered in the sun. It must be remembered also that our knowledge of meteorites is confined to a few only of those which have fallen upon the earth, and that during a very small space of time, physically speaking, not exceeding a few thousand years, or perhaps even not many centuries; while the synthesis of ponderable matter in the sun may reasonably be supposed to vary from time to time as to the particular chemical elements produced. A remarkable and instructive fact, in the actual condition of science on this subject, is that the metal iron is now known to be an abundant and characteristic element of the sun, of meteorites, and of the earth."—Inf. and Suggest., p. 124.

fall of meteorites is a continuation or a residue of the process of formation of our planet, and that the earth was originally produced, according to the *a priori* argument of the theory, by the aggregation and coalescence of meteorites, or of greater masses into which they had previously coalesced. Agreeably to the law of the conservation of energy and to the dynamical theory of heat, the enormous original velocity of the meteoritic masses being diminished by their collision and coalescence, great part of the mechanical force of their motion would be reconverted into heat, and become eventually the "primitive" internal heat of the earth, for which it would appear that what may be reasonably characterized as a *vera causa* is thus supplied.

The last section of the paper relates to the "*Projectile Power of the Sun*," accounted for in the section on the spots (page 90), and by which meteoric masses are conceived to be transferred with great velocity to the interplanetary spaces. The radiation of the sun itself evinces that its projectile power is adequate to effect all the phenomena here ascribed to it. The force "directed *from* the sun," "incomparably more energetic than gravitation," in the words of Sir J. Herschel,* which imparts such enormous velocity to the materials of the tails of comets, must be amply sufficient to communicate to bodies of greater mass the much slower, though still rapid motion required, of which the observed velocity of meteors and the centrifugal part of the orbital motion of the planets are merely the unconverted residue.

No suggestion was offered, in this communication, as to the remote origin of the solar elements, or that of the force by which they are conceived to be condensed into ponderable matter.

Everything ascribed to the sun in the 'Inferences and Suggestions in Cosmical and Geological Philosophy,' of which an epitome is here presented—together indeed with everything ascribed to it, in the three papers on its nature and functions which have now appeared in the 'Companion to the Almanac'—is intended to apply in a general manner to the stars also (so far as it can be applicable to stars other than the sun, and so far as our knowledge of them extends), agreeably to the primary cosmical truth that they are suns, "which must be characterized, each in its own system, by the uniqueness and peculiarity which characterize our sun in its system."†

The induction by which the original formation of the earth and other planets, by the coalescence of meteoritic masses, is here arrived at, is new; but from that point these views have a certain parallelism with those founded on the principles of Celestial Dynamics‡ first enunciated by Mayer, and maintained by him, Mr. Waterston, and Professors Helmholtz and William Thomson, some parts of which, including those now alluded to, have been avowedly adopted from Mayer by Professor Tyndall also. Their theory, however, of the actual production of the earth and the source of its primitive heat, though similar to that advanced above is purely hypothetical, whereas

* 'Outlines of Astronomy,' pars. 570 and 599. † See page 84.

‡ A full account of these principles of Celestial Dynamics will be found in our second paper on the sun, 'Companion,' 1865, pp. 41 to 70.

the latter is founded on the observed fact of the fall of meteorites upon the earth, pursued to its logical consequences agreeably to the principle of the sufficiency of causes now in action. The fundamental notion on which these cosmogonists all proceed—applying it to the law of the conservation of energy, especially in its particular form of the dynamical theory of heat—is that of the original and actual universal distribution throughout space and time of "Cosmical Masses," the "Asteroids" of Arago "which produce the phenomena of shooting-stars and fire-balls," or—in this particular sense—"Meteorites." But for this notion there is no other foundation than that afforded by the existence of meteors and meteorites in the vicinity of the earth (to explain which in fact it was originally enunciated by Chladni, above seventy years since), and the parallel inference that such bodies constitute the molecules of the zodiacal light; circumstances which, as partly indicated above, and will be further explained as we proceed, may be interpreted in a very different manner with far greater probability. While, under any conceivable view of the subject, these masses must be considered to be widely distributed around the sun, the notion that space is replete with them *ab origine* (*ab initio—ab æterno?*) is an assumption unwarranted even by probable facts. There is no indication whatever of their existence beyond the solar system (however reasonable it may be to suppose that corresponding objects form part of other stellar systems), and their hypothetical distribution in exterior space is no more supported by the probable existence of interplanetary zones of cosmical matter (to which Mayer also appeals), even in the extreme regions of the system, than it is by the known existence of the planets themselves, as being that of other "cosmical masses."

The Mayerian system is characterised by a singular inconsistency, which is almost equivalent to a contradiction in terms. It maintains the solar origin of all the dynamic phenomena of the earth, and, so to speak, exults in attributing them to the sun.* But it virtually denies that the sun is anything more than the mediate origin of them, the mere instrument of the diffusion of light, which becomes converted into heat upon the earth—labouring as it were to establish the conviction that the powers of the sun themselves originate in the mutual attraction of "cosmical masses"—and as if it delighted to evince how great are the exceptions to the universality it claims for solar origination, while it traces all the present activities of the earth and planets to the sun—even those of organic life†—thus ascribes their original production and their internal heat to a different source, independent of, and antecedent to, the sun.

In this system of celestial dynamics, the origination and maintenance of the light and heat of the sun, and indeed those of the sun itself, are also accounted for by the confluence and impact of meteorites, terminating in their incorporation with the sun, or as recently inferred, in their actual resolution into solar matter. Of this theory, that presented in the '*Inferences and Suggestions*,' communicated to the Royal Society, is virtually, in nearly every stage, the inversion, though founded on different data, and arrived at by inde-

* 'Companion,' 1865, p. 43. † *Ib.* p. 65.

pendent reasoning. According to the physicists of the Mayerian school, the activities of nature begin with the mutual attraction of "cosmical masses," of which meteorites are taken as examples. In the theory now offered they commence with force and heat and light and matter locally originating in the sun. This, it is conceived, will be found to be at least equally accordant with the only relevant facts of observation, and with the law of the conservation of energy and its derivative principles, which, in themselves, have been elaborated with so much ingenuity and success by Mayer and his followers and disciples:—the announcement of that law by him having been shortly subsequent to, though independent of, the enunciation of the confluent law of the correlation of physical forces by Mr. Grove.

The notion of the universal distribution of "cosmical masses," from the coalescence of which planets and suns result, is in reality identical with that of the diffusion throughout space of "nebulous matter," according to the "Nebular Hypothesis" of the formation of the heavenly bodies, which modern telescopic research, and the recent spectroscopic observations of Mr. Huggins, have shown to be void of foundation. (See pages 106—112).

Among the subjects related to the sun, which, at the end of our first article (Comp., 1864, p. 51.), were reserved for future consideration, was that of the celestial object called, from its position, the ZODIACAL LIGHT, "which seems at once," it was then said, "to be a kind of medium between the sun and the solar system, and an indication that the sun is one of the nebulous stars." It has been alluded to several times, both in the second and the present article, but has not yet been described.

The zodiacal light may be seen any very clear evening soon after sunset, about the months of March, April, and May, or at the opposite seasons before sunrise, as a cone or lenticularly-shaped light, extending from the horizon obliquely upwards, and following generally the course of the ecliptic, or rather that of the sun's equator. The apparent angular distance of its vertex or summit from the sun varies, according to circumstances, from 40° to 90°, and the breadth of its base perpendicular to its axis from 8° to 30°. It is extremely faint and ill-defined, at least in this climate, though better seen in tropical regions, but cannot be mistaken for any atmospheric meteor, or for the aurora borealis. According to Sir J. Herschel, from whom this account of it is derived, "It is manifestly in the nature of a lenticularly-formed envelope surrounding the sun, and extending beyond the orbits of Mercury and Venus, and nearly, perhaps quite, attaining that of the earth, since its vertex has been seen fully 90° from the sun's place in a great circle . . . . An *atmosphere* of the sun [as had been supposed by Mairan and others] in any proper sense of the word it cannot be . . . . . If its particles have inertia, they must necessarily stand with respect to the sun in the relation of separate and independent minute planets, each having its own orbit, plane of motion, and periodic time. The total mass being almost nothing compared to that of the sun, mutual *perturbation* is out of the question, though *collisions* among such as may cross each other'

paths may operate in the course of indefinite ages to effect a subsidence of at least some portion of it into the body of the sun, or those of the planets . . . . . Nothing prevents that these particles, or some among them, may have some tangible size, and be at very great distances from each other. Compared with planets visible in our most powerful telescopes, rocks and stony masses of great size and weight would be but as impalpable dust which a sunbeam renders visible as a sheet of light when streaming through a narrow chink into a dark chamber."* That this object consists of separate particles appears to have been first advanced in the preceding century, by Cassini, the first astronomer of that name; and these particles, after the great display of periodical meteors in the year 1833, were hypothetically identified with meteors by the late accomplished French philosopher Biot; a view of the subject which Sir J. Herschel seems by implication to adopt. Professor Olmsted's supposition, that the nebulous body to which he ascribed the meteoric displays of 1799 and 1833, was the cause also of the zodiacal light, is a similar identification of a less precise kind.

Professor Tyndall, adopting the Mayerian theory of the formation of the sun and the planets, as dealing with a cause which, if in sufficient operation, would be competent to produce the effects ascribed to it, though he refrains from offering an opinion with regard to its probable truth or fallacy, states that according to that theory (as was explained at some length in our second article, Companion, 1865.), the solar heat and light are caused "by the showering down of meteoric matter upon the sun's surface. The zodiacal light is supposed to be a cloud of meteorites, and from it the rain of meteoric matter may be derived." Again: "following up these reflections, we should be led to the conclusion that while an immeasurable stream of ponderable meteoric matter moves unceasingly towards the sun, it must augment in density as it approaches its centre of convergence. And here the conjecture naturally arises, whether that vast nebulous mass, the zodiacal light, which embraces the sun, may not be a crowd of meteors. It is at least proved that this luminous phenomenon arises from matter which circulates in obedience to planetary laws [and therefore, agreeably to previous remarks of Professor Tyndall, founded on Mayer's reasoning,† through the friction of the resisting medium, drawn by the sun gradually towards it ‡]; hence, the entire mass of the zodiacal light must be constantly approaching, and incessantly raining its substance down upon the sun." And further: Professor William Thomson considers "that the meteors, which are to furnish stores of energy for our future sunlight, lie principally within the earth's orbit, and that we see them there, as the zodiacal light 'an illuminated shower, or rather tornado, of stones.' "§

The reader of this paper will be already aware, from what has been

* 'Outlines of Astronomy,' seventh edition, 1864, par. 897, 898.
† See 'Companion,' 1865, p. 49.
‡ See page 100, note.
§ 'Heat considered as a Mode of Motion.' Second edition, 1865. Pars. 47, 595, 603. See also 'Companion,' 1865, pp. 60, 61, and note.

said of the origin and nature of the zodiacal light, in the preceding pages 91—93, that the writer's views on the subject are diametrically opposite to those of the Mayerian cosmogonists. He considers that this luminous object originates from the accumulation of solar bubbles and froth thrown off from the spots, in the region of the sun's equator,* and that these in forming the zodiacal light become condensed and otherwise converted into meteoritic masses, which are afterwards further projected into planetary space,† where they appear as meteors, eventually become meteorites, and finally coalesce into planets. The original inference that the zodiacal light consisted of separate particles of matter, and the recent probable identification of those particles with meteors and meteorites, are independent of all views of their origin or prior condition.

To affirm, on the one hand, that they originate in and proceed from the sun, or on the other, that they come from distant space and rain down upon the sun—constituting on either view, the permanent zodiacal light, while they remain in association in the immediate vicinity of the sun, the place of those which leave it being perpetually supplied by others newly arrived—*are both hypothetical assumptions*, to which opposite cosmical views lead, and one or other of which must be verified before it can be received as a part of true inductive science. The writer rests his claim for the reception of the views of cosmical philosophy, enunciated in his 'Inferences and Suggestions,' and in these papers on the sun, on their consistency with all that we actually know and with much that is probably believed of the sun, and the zodiacal light, and of meteors and meteorites, and commits himself unhesitatingly to the future progress of natural knowledge for their verification and establishment.

According to these views, the interior zones of the zodiacal light, in near proximity to the sun, consist of and receive the solar bubbles eventually to become meteorites, in all the intensity of their primitive incandescence, as they rise from the photosphere;‡ and must have

* Cassini assumed that the sun may eject into the plane of its equator, and beyond the orbit of Mars, the particles of which he sagaciously inferred the zodiacal light to consist. The author's deduction on this point, however, is founded on *à priori* reasoning, and he did not become aware of Cassini's assumption until some months after the appearance of his own paper in the 'Proceedings of the Royal Society.' In the article on the subject in Rees's 'Cyclopedia,' it is stated to be "generally supposed" that the zodiacal light consists of "matter detached from the sun by its rotation about its axis." But that article was unknown to the writer until he had occasion to consult it during the composition of this third paper on the sun, and that such separation of matter from the sun should take place is an integral part of his theory of the maintenance of its spherical form. Cassini suspected the existence of a sympathy between the appearance of spots on the sun and the changes in the zodiacal light; and Professor Olmsted, in our own time, affirmed that the latter was unusually conspicuous at the period of the great meteoric shower of the year 1833, but not in the two succeeding years, when no extraordinary number of meteors was observed. It would be unsafe to lay much stress on these alleged coincidences, but it is fair to remark that both would be accounted for by the hypothesis here advanced, and would in fact naturally follow from it. Other points suggested by it, with reference to the figure of the sun and the phenomena of its rotation, must be reserved for discussion hereafter.

† See the article "Meteors, Igneous or Luminous," 'English Cyclopedia,' division of Arts and Sciences, vol. v. col. 605.

‡ It will be consistent to believe that these bubbles perpetually rising through the external atmosphere of the sun diffuse in it the heterogeneous aëriform matter, the condensation of which gives rise to the clouds of that atmosphere called "luminous prominences," and that their physical and chemical resemblance to the persistent trails left in the earth's atmosphere by meteors may thus be accounted for (see p. 81).

throughout a temperature proportionally high, second only, indeed, to that of the outer regions of the sun itself, and exerting corresponding effects on the matter subject to it (see page 93.) The extreme borders, on the other hand, consist of meteoritic masses, resulting from the partial condensation of those bubbles, in a comparatively advanced state of formation, and occupying a region the temperature of which may possibly not much exceed that of the planetary spaces. The extension of the zodiacal light is, in fact, the transmission, collectively, to the vicinity of the earth (or other planets) of myriads of those meteoritic masses, which seem to acquire an orbital motion themselves, and become known as showers, streams, or zones of meteors, characterized by a certain periodicity not yet fully understood. Multitudes of them—but an infinitesimal fraction only of any single periodical assemblage—appear as shooting-stars and fire-balls; of which many again terminate their course as meteors or their nuclei by dissipation in the earth's atmosphere, as observed long ago by the writer, and recently accounted for by Dr. Joule and Professor Thomson, from their researches on the heat developed by friction in air.* Others of these bodies, forming, however, a still more minute fraction of the whole, or even of any one observed congeries, being attracted by the earth, after traversing its atmosphere as luminous meteors, fall upon it as meteorites, as already explained; all these phenomena constituting merely portions, or intermediate results, of the process by which planets are formed.

Professor Thomson thus alludes to another part of this subject: "From the fact that the sun's equator, the planets' orbits, and the zodiacal light, all lie nearly in one plane, it appears highly probable that the sun's present motion [of rotation] has really been acquired by the incorporation of meteors." †

That the orbits of the planets, collectively regarded, and the limits of the zodiacal light, describe as it were a thin lenticular body—the centre of which is the sun, and the principal section of which is an extension of the plane of the sun's equator—or, in familiar terms, that they are included in a sort of circular *slice* or *plate* of space, having the sun as a mere point in the centre of its thickness, is a pregnant and instructive fact. But it would result from the production of the zodiacal light, and finally of the planets, by the association and coalescence of meteoritic masses, originally projected from the sun's equatorial regions, in parallel or slightly divergent planes, agreeably to the cosmical hypothesis enunciated by the writer. Its connection with the rotation of the sun is that of effect only; but its primordial physical cause, the conversion of imponderable matter within the sun into torrents of ponderable gaseous matter, may also be the cause of the sun's rotation itself, which in its turn controls the outbreak of those torrents on the photosphere, in what we call the sun-spots. (See page 90.)

* The solar projectile centrifugal force to which the transfer of meteoritic masses from the sun to the interplanetary spaces is here ascribed, would at first overcome the resistance of the ethereal medium in those spaces, which, however (if it really exists and operates), would eventually be the cause of the gradual convergence of these masses, and, in union with their mutual attraction, of their final coalescence into planetary masses and planets.

† 'Transactions of the Royal Society of Edinburgh,' vol. xxi. p. 79.

In what senses the zodiacal light may be regarded as "a kind of medium between the sun and the solar system" has been sufficiently explained in what precedes. The indication found in it by Sir J. Herschel, that the sun belongs to the list of "nebulous stars" requires a few remarks. One of the classes into which the faintly luminous bodies placed in space beyond the extreme limits of the solar system, and belonging apparently to the starry heavens, called *Nebulæ*, were arranged by their great observer, Sir William Herschel, is that of "nebulous stars." These seem to be stars which are surrounded apparently by matter of the same kind as that constituting the other classes of nebulæ, which do not break up into stars when examined by the telescope. The aspect of the sun as enveloped in the comparatively faintly luminous lenticular envelope now described, appears to Sir John Herschel to place it in the list of nebulous stars. But he also regards the corpuscular constitution of that envelope, and the presumed identity of its corpuscles with meteors, as a part of the same indication. Unless in this generalisation the terms *nebula* and *nebulous* matter are to be understood in a very different application to nebulous stars from that in which they are employed with respect to the other classes of nebulæ, we must be pardoned for suggesting that it is too vague to be capable of definite interpretation. The subject, however, will be noticed under another aspect in page 108.

In order that the pretensions of the views submitted to the Royal Society, and, so far as they relate to the sun and its immediate derivations, now summarily laid before the readers of the "Companion to the Almanac," may be accurately understood, one of the concluding paragraphs of the original paper is here subjoined; with the remark, that it is intended equally to apply to the new views of solar physics which have been taken in these three articles on the Sun:

"These views are stated in the broad generality of first approximations to the several Cosmical Hypotheses presented for verification; but they include also some inductions which the author hopes will, when adequately examined, prove to be sound. Some of them, from the magnitude and complexity of their subjects, especially that termed the 'Theory of the Sun,' are scarcely more than rudimentary. Every principal subject of these Inferences and Suggestions will require development, as well, probably, as limitation or correction. Many of the points affirmed must be supported by the facts or settled principles of philosophical truth by which their probability may be shown, or in some instances perhaps their certainty established. In addition to the parallelism with a part of the 'Celestial Dynamics' of Mayer and his followers, the character of which has been explained, other apparent coincidences with published views are in need of discrimination, in order to evince the originality of those now advanced."

Some account of the two new branches of chemical science, *solar* and *stellar chemistry*, briefly noticed in the first article (Companion, 1864, p. 36, 51), is next due to our readers. We must assume that they are acquainted with the band of colours called the *solar spectrum*, into which the sun's white light is analyzed by the refractive power of a triangular prism of glass. When this spectrum, in its utmost possible state of purity and tenuity, is received on a white screen, or

viewed by at once admitting it into the eye, it is seen to be not an uninterrupted band of light, red at one end and violet at the other, and shading away by insensible gradations through every intermediate tint from one to the other, as Sir Isaac Newton, by whom this experiment was first made, conceived it to be, and as a cursory view shows it. It is interrupted by intervals relatively dark. Instead of a luminous *fascia* of equable light and graduating colours, it presents the appearance of a striped riband, being crossed in the direction of its breadth by a multitude of dark and by some totally black bands, distributed irregularly throughout its whole extent. These were first noticed by the late Dr. W. H. Wollaston, who possessed extraordinary powers of physical and chemical investigation, especially in minute research, rather more than sixty years since. They were afterwards "examined in full detail, and with every delicacy and refinement which the highest talents and the most unlimited command of instrumental aids could afford, by the admirable and ever-to-be-lamented Fraunhofer," an optician of Munich, who published, in 1815, a map of the solar spectrum, in which six hundred of these dark bands or lines are laid down. They are constantly in the same parts of the spectrum, and preserve the same order and relations to each other—the same proportional breadth and degree of obscurity, whenever and however they are examined, *provided solar light be used.* By solar light must here be understood, "not merely the direct rays of the sun, but any rays which have the sun for their ultimate origin—the light of the clouds or sky, for instance, of the rainbow, of the moon, or of the planets. All these lights, when analyzed by the prism, are found deficient in the identical rays which are wanting in the solar spectrum; and the deficiency is marked by the same phenomenon, viz., by the occurrence of the same dark bands in the same situations in spectra formed by these several lights.* In the light of the stars, on the other hand, in the electric light, and that of flames, though similar bands are observed in their spectra, yet they are differently disposed; and the spectrum of each several star,† and each flame, has a system of bands peculiar to itself, and characteristic of its light, which it preserves unalterably at all times, and under all circumstances."‡

The origin of these lines was for a long time a most perplexing question. Sir J. Herschel pointed out, in 1833, that before any conclusion could be drawn from the dissimilarity of the "fixed lines," as they have come to be called, of the solar spectrum, to those which belong to the light of any terrestrial flame—the relation of solar light to that of terrestrial flames presently to be stated, had not then been discovered—with respect to the origin of the solar light, we must recollect that, previous to reaching us, it has undergone the whole absorptive action of our atmosphere, as well as of the sun's. He suggested experiments which would decide whether or not some or all of

* Mr. Huggins has recently ascertained that, besides the solar lines, the spectra of the planets Mars, Jupiter, and Saturn present others due to the absorptive action of their atmospheres on the sun's light, received and reflected by those planets, and some of which are identical with the lines of our own atmosphere, but that the lines in the spectra of the Moon and Venus are those of the sun only.

† On the spectra of the stars, as now known, see page 104.

‡ Sir J. Herschel, LIGHT, Encyc. Metrop. art. 416, vol. iv., p. 409.

them might not have their origin in our atmosphere, but by which, as he observed, "the absorptive effect of the sun's atmosphere, and possibly also of the medium surrounding it (whatever it be), which resists the motions of comets, cannot be eliminated," but would remain in the spectrum.* Sir David Brewster inferred, from certain experiments of his own on the production of analogous (though not identical) lines, by interposing a jar containing nitrous acid gas in the path of a ray of light, that the solar lines do not denote rays originally wanting in the light of the sun (as had been suggested), but are due rather to the absorption produced by some substance interposed between the source of light and the spectator, thus agreeing in general with Sir J. Herschel. Sir D. Brewster's "subsequent researches, in conjunction with those of Dr. Gladstone and others, led, on the whole, to the belief that this absorption was probably not due to the earth's atmosphere, and of course the only remaining field for such an influence was the atmosphere of the sun." But it remained for Kirchhoff to set the matter at rest, "not, however, before the true explanation had been divined by Professor Stokes," of Cambridge.

Among the fixed lines of the solar spectrum is a double one which Fraunhofer denoted by the letter D in his map. Now the metal sodium, or any of its compounds, such as common salt, produces a flame which is intensely yellow, and yellow only, its light being therefore said to be monochromatic. This flame is the incandescent vapour of the metal. When its light is analysed by the prism, or its spectrum produced, it is found to consist of two simple rays exactly corresponding in position—if we suppose its spectrum to be complete like that of the sun, containing all the colours, that is, all the rays of which those colours are the visual effects—with the double dark line D of the actual solar spectrum. We are thus furnished in the salt flame with two rays of light which are absent in the light of the sun, and with these rays alone.† The spectrum of heated and luminous vapours universally consists of bright lines on a dark ground. And these bright lines are always characteristic of the particular vapour which is ignited to produce them. Each elementary substance, whether metallic or non-metallic, has its peculiar lines, and according to our present knowledge, no line of any one element is exactly coincident with that of any other. "Now, if instead of using these vapours as our source of heat, we use them in a comparatively cold state as a screen, our source being an incandescent solid body which gives out all rays, then we shall find that each vapour stops precisely those rays which it gives out when heated. Thus a salt flame, or incandescent sodium, gives out the double line D; vapour of sodium (when cold) also stops the same line, and a similar rule holds for all

* Outlines of Astronomy, 7th edit., par. 400, note.

† Such was the result of the original observations of spectroscopists. But it is requisite now to add that Mr. Huggins has recently shown that the vapour of sodium, when ignited by the electrical induction-spark, emits also rays of other refrangibilities. In addition to the double line described above, three other pairs of lines and a nebulous band are seen. With the spectroscope constructed by Mr. Browning for Mr. Gassiot, V.P.R.S., several dark lines are seen in the solar spectrum within the strong lines composing the double line D. Three of these have been found by the Kew observers to coincide in position with three bright lines which the same instrument shows in the flame of an alcohol lamp containing sodium vapour.

vapours. Whenever, therefore, we have a source of light containing all rays, but which is surrounded by an atmosphere of metallic vapours at a [comparatively] low temperature, each of these vapours will stop its own appropriate rays, and the spectrum of such a system will exhibit a bright ground intersected by dark lines. This is precisely the character of the solar spectrum [as described above], and we have seen that one of its lines, namely D, is that which is produced by the absorptive power of sodium vapour. We are, therefore, entitled to conclude that this vapour exists in the atmosphere of the sun. Again, the vapour of iron gives out certain bright lines which appear as dark [lines] in the sun's spectrum; we conclude, therefore, that iron vapour exists there in a *comparatively* cold"* or less heated state.

According to these principles, then, and agreeably to these examples of their results, were the foundations of *Solar Chemistry* laid by the genius of Kirchhoff, who thus discovered that the sun's atmosphere contains the vapours of the metals sodium (the base of the alkali soda), calcium and magnesium (the bases of the earths, lime and magnesia, respectively), barium (the base of the earth baryta), iron, chromium, and nickel (the last two metals being found associated with the iron of meteorites), copper and zinc. The solar spectrum also gives indications of strontium (the metallic base of the earth strontia). of cadmium, and of cobalt, which is a third metal characteristic of meteoric iron, but they are as yet doubtful.† To these, two other physicists who have made researches in solar chemistry, Angström and Plücker, have added the non-metallic element hydrogen, one of the constituents of water.

That fixed dark lines exist in the spectra given by the light of the stars, and that each star has a system of lines peculiar to itself, has already been mentioned. These facts, in relation to the several stars named Betelgeux, Sirius, Capella, Castor, and Procyon, were ascertained by Fraunhofer, the accuracy of whose observations upon them and measurements of some three or four lines in their spectra, has not been exceeded by subsequent observers. But the science of *Stellar Chemistry* has remained to be instituted by Mr. William Huggins, F.R.S., an astronomical observer provided with the union of scientific knowledge which this science demands in its votaries, and Dr. W. Allen Miller, V.P.R.S., Professor of Chemistry in King's College, London. Probably no observations of natural phenomena which have

* Balfour Stewart, 'Quarterly Journal of Science,' Oct., 1864; vol. i., pp. 592, 593, 597. All this agrees with the structure of the sun and the distribution of heat within it, as given in the 'Companion,' 1864, pp. 48–51. The photosphere is the source of light, consisting of all the rays, and the surrounding atmosphere contains the metallic vapours which, by absorbing some of them, leave the dark lines in the spectrum, those vapours being preserved at a temperature much lower than that of the photosphere by the perpetual escape of heat from the sun by its radiation. See also pages 78, 113.

† Kirchhoff has been unable, hitherto, to discover lines in the solar spectrum corresponding with those of the following metals:—Gold, silver, mercury, aluminium, tin, lead, potassium, antimony, arsenic, and lithium, or of silicon, the non-metallic base of the earth silica. See page 94, note. At the late meeting of the British Association at Bath, however, Mr. Gassiot announced in a paper on a powerful apparatus of prisms constructed for him, that the Kew observers believe they have noticed, by means of that apparatus, the coincidence of several bright gold lines, with corresponding dark lines, in the solar spectrum. The confirmed discovery of gold in the sun's atmosphere would be as interesting as that of iron already made. See Report of the British Association for 1864. Transactions of Sections, p. 11.

ever been made are of greater, if, indeed, of so much delicacy, require more labour or occupy longer time than these, in which astronomy and physics and chemistry are combined. The number of fixed stars which Mr. Huggins and his coadjutor have to a greater or less extent examined amounts to nearly 50. They have, however, concentrated their efforts upon three or four of the brighter stars, and have hitherto been able to map the spectra of two only of these with any degree of completeness. But these, the spectra of Aldebaran and Betelgeux, and probably that of β Pegasi, are as rich in lines as the solar spectrum; the position of seventy lines in the first and eighty in the second have been measured. No stars sufficiently bright to give a spectrum have been observed to be without lines. . . . . Star differs from star alone in the grouping and arrangement of the numerous fine lines by which their spectra are crossed. "The few really fine nights that are available whilst the star is well situated for such observations, in respect of altitude and the time of sun-setting, necessarily make the complete investigation even of a single star the work of some years."

The following is an abstract of the observed results:—

Aldebaran, a pale rose-coloured star, hydrogen, and the following metals: sodium, magnesium, calcium, iron, bismuth, tellurium, antimony, and mercury.* *α Orionis* (*Betelgeux*), orange; sodium, magnesium, calcium, iron, and bismuth.† *β Pegasi*, fine yellow; sodium and magnesium, and perhaps barium.‡ *Sirius*, brilliant white; hydrogen, sodium, magnesium, and probably iron. *α Lyræ* (*Vega*), white; hydrogen, sodium, magnesium. *Capella*, white, with a spectrum closely resembling that of our sun; sodium. *α Boötis* (*Arcturus*), red; sodium. *Pollux*; sodium, magnesium, and probably iron. *α Cygni*; sodium. *Procyon*; sodium.

A tendency was recognised in these observations, confirmatory of the truth of this method of research, to the fact, that *all* the lines of each elementary or metallic spectrum are contained in the spectra of the stars which exhibit *any* of them.

The lines denoted by the letters C and F, in the solar spectrum, which are those of hydrogen, are highly characteristic of the solar spectrum, and of the spectra of by far the larger number of the stars to which the observations of the authors have been extended.§ But in the spectrum of *α Orionis* and in that of β Pegasi which closely resembles it in character, these hydrogen lines are absent. Another fact strikingly confirmatory of this method of analysis is that in all the

* Neither the non-metallic body nitrogen, nor the metals lithium, barium, cadmium lead, tin, cobalt, were observed in *Aldebaran*.

† Hydrogen, nitrogen, lithium, barium, cadmium, silver, mercury, not observed in *Betelgeux*.

‡ Hydrogen, nitrogen, tin, mercury, not observed in *β Pegasi*.

§ As the hydrogen lines are so characteristic of the spectra of the sun and stars, the question naturally occurs whether any indication of oxygen, the other element of water, is found in them. Such, however, has not yet been observed. But that water or its elements is actually present in the sun, appears to be probable. Mayer, as we have seen ('Companion,' 1865, p. 53), admits its possible existence on the sun's surface, even in a liquid state. Prof. Tyndall's researches on the power of water in all states in the transmission, absorption, and radiation of heat, compared with the results of the investigations of the climate of the planets, by Mr. Hopkins, of Cambridge, suggest an argument for its universality in the planets of the solar system, and this would lead to the belief of its presence, or that of its elements, in the sun itself.

stars hitherto examined by the authors in which a line corresponding to C exists, that corresponding to F is also found. When F is absent, C is also wanting. "It is worthy of notice that in the case of Sirius" which is a brilliant white star, the spectrum of which is very intense, "and a large number of the white stars, at the same time that the hydrogen lines are abnormally strong as compared with the solar spectrum, all the metallic lines are remarkably faint;" as if the amount of hydrogen in their atmospheres was greater than in the atmosphere of the sun, but that of the metals less; or that the hydrogen was present in a denser state, which, perhaps, would be still more remarkable. The great intensity of the light of Sirius, it is remarked in the paper, would lead to the conclusion that its atmosphere of gases and vapours is of itself incandescent (as appears to be the case with our sun), as well as the nucleus within, the temperature of which, however, must be still more intensely high.

The paper in which these interesting results have been made public, concludes with some applications of them to cosmical philosophy, some of which, relating to the evidence they afford that the stars are in a physical sense Suns, are here extracted; but it must be premised that both solar and stellar chemistry are in their infancy, and that while we have every reason to believe, according to the principle on which the observed facts are interpreted, that the elements affirmed to exist in the atmospheres of the sun and stars are really present in them, future observation may discover other elements in all, showing the chemical constitution of the stars to be more or less like that of our sun, or of each other, than now appears to be the case.

"These spectrum observations are not without interest, also, when viewed in connection with the *nebular hypothesis* (see *ante*, page 97; *supra*, page 112) of the cosmical origin of the solar system and fixed stars. For if it be supposed that all the countless suns which are distributed through space, or at least those of them which are bright to us, were once existing in the condition of nebulous matter; it is obvious that, though certain constituents may have been diffused throughout its mass, yet the composition of the nebulous material must have differed at different points; otherwise, during the act of agglomeration, each system must have collected and condensed equal proportions of similar materials from the mass around. It cannot be supposed that similarity in physical properties has caused the association of the different elements: we find, for example, some of the least volatile of the metals, such as iron, associated with highly volatile elements, such as mercury and tellurium, in the same star." (Aldebaran, as above stated.). . . . "The additional knowledge which these spectrum observations give us of the nature and of the structure of the fixed stars, seems to furnish a basis for some legitimate speculation in reference to the great plan of the visible universe, and to the special object and design of those numerous and immensely distant orbs of light. . . . . Upon the earth we find that the innumerable individual requirements which are connected with the present state of terrestrial activity, are not met by a plan of operation distinct for each, but are effected in connection with the special modifications of a general method embracing a wide range of analogous phenomena.

. . . . The observations recorded in this paper seem to afford some proof that a similar unity of operation extends through the universe as far as light enables us to have cognizance of material objects. For we may infer that the stars, while differing the one from the other in the kinds of matter of which they consist, are all constructed upon the same plan as our sun, and are composed of matter identical, at least in part, with the materials of our system. The differences which exist between the stars are of the *lower order*, of differences of *particular adaptation*, or special modification, and not differences of the *higher order* of distinct *plans of structure*. There is therefore a probability that these stars which are analogous to our sun in structure, fulfil an analogous purpose, and are, like our sun, surrounded by planets, which they by their attraction uphold, and by their radiation illuminate and energize. And if matter identical with that upon the earth exists in the stars, the same matter would also probably be present in the planets genetically connected with them, as is the case in our solar system. . . . . On the whole, we believe that the foregoing spectrum observations on the stars contribute something towards an experimental basis on which a conclusion, hitherto but a pure speculation, may rest, viz., that at least the brighter stars are, like our sun, upholding and energizing centres of systems of worlds adapted to be the abode of living beings."

Conversely, it may be remarked, these observations have clearly evinced to what class of cosmical bodies the glorious luminary belongs, some of the phenomena of which it has been the object of these articles to describe. The SUN is now proved to be a STAR by physical and chemical evidence.

It must be borne in mind in considering the import of the results obtained by Mr. Huggins and his coadjutor, by applying spectrum-analysis to the light of the stars, that they relate only to those stars, of which our sun is one, which compose the cluster or resolvable nebula called the Milky Way, and which, according to the broad analogies we find to exist throughout nature, we might reasonably expect to agree with our sun and each other in a common "plan of structure," and an accordant chemical constitution. But there are multitudes of detached objects in space, distant from the Milky Way, and from each other, invisible to the naked eye, and characterised even in powerful telescopes by a similar aspect of dim milky light; but demonstrated by those of greatest power also to consist of myriads of stars, or to be what is termed resolvable into stars separately visible. Such objects are called *Nebulæ*, until they are thus discovered to be clusters of stars. Mr. Huggins has extended his spectrum observations to these objects also, and has described the results with respect to five of them. With all these a faint spectrum, similar to that of a single star, was obtained, the faintness being of course attributable to the excessive distance of the clusters from the earth, immensely transcending that of any known star. But as we see these objects by the collective light of the stars composing them, so we may infer that the spectrum given in each case is the spectrum of that collective light. In the instance of one of these clusters, known as the "very bright companion of the nebula in Andromeda,"

the spectrum, throughout its length, is evidently crossed either by lines of absorption (fixed lines) or by bright lines. With respect to these objects, therefore, we have the conclusion as to their constitution, that they consist of separate stars or suns, derived from telescopic observation, confirmed by the prismatic analysis of their light. But their distance, which causes the faintness of their spectra, also renders their dark lines imperceptible, and therefore we have no evidence of their chemical constitution. At some distant point in the universe where the Milky Way might be seen as a resolvable nebula or a cluster of stars, we may reasonably believe that it would yield a spectrum similar to that of one of these clusters examined by Mr. Huggins, though indicating perhaps at the same time a difference of chemical constitution, as nothing that we yet know warrants us in concluding that (the stars of) *different clusters* are similar in that respect. It is more probable that each cluster has its own distinct plan of structure and peculiar constitution.

These observations of Mr. Huggins are also confirmatory of previous conclusions in another respect, bearing on the particular history of our sun, and including a subject on which further information was promised in the first article. The writer, in the revised syllabus of lectures on Astronomical Physics already cited, had offered the following inferences:—"The observations of Lord Rosse have rendered it in a high degree probable that the objects called [by Sir William Herschel] Nebulous Stars, are in reality very distant nebulæ of normal constitution [but as yet unresolved], as Sir J. Herschel, after observing those of the Southern Hemisphere, had inductively admitted might be the case. Should this be established, it will follow: 1. That our Sun, as enveloped by the cause of the Zodiacal Light, cannot belong, according to a received opinion [Companion, 1864, p. 51, and above p. 101] to the supposed class of 'Nebulous Stars;' 2. That that envelope, whatever may be its constitution or functions, is not an example of 'Nebulous Matter,' nor of 'Nebulosity' in any true sense in which that term is applicable to the Starry Heavens; and 3, That the Sun cannot, on account of it, be adduced in support of the 'Nebular Hypothesis.'"

One of these objects, described by Sir J. Herschel as a "Fine nebulous star with strong atmosphere," but of which Lord Rosse has stated, "looked for eight times, but saw no nebulous atmosphere," was examined by Mr. Huggins, who obtained from it a "spectrum apparently similar to that of an ordinary star." Now, as we have seen that such spectra were given by the known clusters of stars to which Mr. Huggins applied this method of investigation, we must conclude that this particular object* is also a cluster, a conclusion which corroborates the preceding inferences on the new ground of spectrum research.

There are numerous other nebulæ, however, in the heavens, which are still more faintly luminous, and which are as yet irresolvable; but the conclusion has appeared irresistible—in consequence of the fact that with the increasing power of telescopes the numbers of resolvable

* Designated in Sir J. Herschel's New Catalogue of Nebulæ, "'Phil. Trans.,' 1864, No. 428, 55 Androm."

nebulæ or clusters has also proportionably increased, a fact especially deducible from the observations made by Lord Rosse with the most powerful telescopes yet constructed; that they also are assemblages of stars—though more immensely remote—and would be resolved could a proportionate increase of telescopic power be applied to them.

To some of these irresolvable nebulæ also, Mr. Huggins has extented the method of prismatic research, with results which, though altogether unexpected by some investigators of cosmical phenomena, would readily have been predicted by others. The examination of the spectra of the fixed stars (some of those of our cluster, that is) had shown, as we have seen, a similarity of essential constitution to exist among them, and between them and our sun. "It became, therefore," Mr. Huggins remarks, in opening his new subject, "an object of great importance, in reference to our knowledge of the visible universe, to ascertain whether this similarity of plan observable among the stars, and uniting them with our sun into one great group [probably identical with the Milky Way], extended to the distinct and remarkable class of bodies known as nebulæ. Prismatic analysis, if it could be successfully applied to objects so faint, seemed to be a method of observation specially suitable for determining whether any essential physical distinction separates the nebulæ from the stars, either in the nature of the matter of which they are composed, or in the conditions under which they exist as sources of light. The importance of bringing analysis by the prism to bear upon the nebulæ is seen to be greater by the consideration that increase of optical power alone would probably fail to give the desired information; for, as the important researches of Lord Rosse have shown, at the same time that the number of clusters may be increased by the resolution of supposed nebulæ, other nebulous objects are revealed, and fantastic wisps and diffuse patches of light are seen, which it would be assumption to regard as due in all cases to the united glare of suns still more remote."

The present writer had inferred that the results of Lord Rosse's observations "are exemplified in a remarkable manner, though as yet inadequately appreciated, in the case of the so-called 'Planetary Nebulæ,' hitherto conceived either to differ from all other celestial objects (though Sir J. Herschel has recorded that the light of one in the Southern Hemisphere 'clearly indicates its resolvability into stars'), or to be of the nature of the class of nebulæ termed 'Nebulous Stars,'" already mentioned; "Lord Rosse having shown that, on the contrary, they agree with the other nebulæ in apparent constitution"—though he has not succeeded in resolving them—"and are referable either to those characterized by the annular form long known, of which the Milky Way itself is probably an example, or to the spiral class discovered by himself."

Mr. Huggins, however, remarks that these are some of the most enigmatical of the nebulæ. Presenting in the telescope small round, but slightly oval, discs, they were placed by Sir William Herschel, on that account, "in a class by themselves, under the name of Planetary Nebulæ. They present but little indication of resolvability. The colour

* 'Outlines of Astronomy.' 7th edit, par. 871.

of their light, which, in the case of several, is blue tinted with green, is remarkable, since this is a colour extremely rare amongst single stars. These nebulæ, too, agree in showing no indication of central condensation," which is a character belonging to known clusters of stars aggregated in a globular form. "By these appearances the planetary nebulæ are specially marked as objects which probably present phenomena of an order altogether different from those which characterize the sun and the fixed stars." On this account, he continues, as well as because of their brightness, he selected these nebulæ as the most suitable for examination with the prism.

The memorable observation which appears to indicate a revival of the nebular hypothesis, and which has already been regarded by some as a confirmation of it, was made by Mr. Huggins at his observatory, situated at Tulse-hill, in the southern district of London, on the 29th of August, 1864. He found that the light of this nebula, unlike any other extra-terrestrial light which had yet been subjected by him to prismatic analysis, was not composed of light of different refrangibilities, or did not consist of rays of different colours, and therefore could not form a spectrum. A great part of it being thus monochromatic (see page 103), after passing through the prisms of the apparatus, remains concentrated in a bright line, occupying in the instrument the position of that part of the spectrum to which its light corresponds in refrangibility and in colour, which is greenish-blue ; two other faint lines were also seen. The strongest line was found to coincide in position with the brightest of the lines given by atmospheric air, which is due to the element nitrogen, the faintest line corresponds to one of the lines of hydrogen, which is Fraunhofer's line F, and the other line is a little less refrangible than that given by the metal barium. These lines, it will be observed, were *bright* like those in the spectra of luminous vapours and gases (page 103), and not *dark*, like those of the solar spectrum and the spectra of the stars.

Similar results were obtained with five other planetary nebulæ; the same light lines were seen in all six, and in one a fourth faint line. An exceedingly faint spectrum proper (resembling the spectra of the sun and stars) was seen or suspected in five cases, which Mr. Huggins believes to be due to solid or liquid matter present in parts of the nebulæ, "and as quite distinct from the bright lines into which nearly the whole of the light of the nebula is concentrated."

The celebrated annular nebula in the constellation Lyra yielded the brightest of the three lines, or one of those corresponding to nitrogen, as also did the Dumb-bell nebula in Vulpecula, while no spectrum was given by either.

From these facts of observation Mr. Huggins deduces the following conclusions :—" It is obvious," he says, "that the six planetary nebulæ, the annular nebula in Lyra, and the Dumb-bell, can no longer be regarded as aggregations of suns after the order to which our own sun and the fixed stars" [of our cluster], previously examined, belong. We have in these objects to do no longer with a special modification only of our own type of suns, but find ourselves in the presence of objects possessing a distinct and peculiar plan of structure.

"In place of an incandescent solid or liquid body transmitting light of all refrangibilities through an atmosphere which intercepts by absorption a certain number of them, such as our sun appears to be, we must probably regard these objects, or at least their photo-surfaces" —the surfaces from which their light is actually emitted—"as enormous masses of luminous gas or vapour. For it is alone from matter in the gaseous state that light consisting of certain definite refrangibilities only, as is the case with the light of these nebulæ, is known to be emitted."

"It is, indeed, *possible* that suns endowed with these peculiar conditions of luminosity may exist, and that these bodies are clusters of such stars." But Mr. Huggins adduces various considerations, founded on the observations and inductions of both Sir J. and Sir W. Herschel, which especially in the case of the planetary nebulæ are scarcely in accordance with that opinion.

The small brilliancy of these nebulæ is in accordance with the conclusions suggested by the observations; for, reasoning by analogy from terrestrial physics, glowing or luminous gas would be very inferior in splendour to incandescent, solid, or liquid matter.

"Such gaseous masses would be, doubtless, for many causes, unequally dense in different portions; and if matter condensed into the liquid or solid state were also present, it would, from its superior splendour, be visible as a bright point or points within the disc of the nebula. These suggestions are in close accordance with the observations of Lord Rosse."

"Another consideration which opposes the notion that these nebulæ are clusters of stars, is found in the extreme simplicity of constitution which the three bright lines suggest, whether or not we regard these lines as indicating the presence of nitrogen, hydrogen, and a substance unknown." The broad indication of these researches of Mr. Huggins undoubtedly is that these planetary nebulæ are enormous masses of nitrogen and hydrogen gas, unless, indeed, his suspicion that the line attributed to nitrogen really belongs to a more elementary form of matter, shall be verified by future investigation.

Mr. Huggins has since extended his researches to the great nebula in the sword-handle of Orion, the light from every part of which was resolved by the prisms into three bright lines, in all respects similar to those of the gaseous nebulæ, as already described from his previous observations. The evidence afforded by the largest *telescopes* appears to be that the brighter parts of the nebula in Orion consist of a "mass of stars; the whole, or the greater part of the light from this part of the nebula must therefore be regarded as the united radiation of these numerous stellar points. Now, it is this light which, when analyzed by the prism, reveals to us its gaseous source, and the bright lines indicative of gaseity* are free from any trace of a continuous spectrum, such as that exhibited by all the brighter stars which Mr. Huggins has examined. "The conclusion is obvious," he says, "that the detection in a nebula of minute closely associated

* We are glad that Mr. Huggins has adopted this useful and correctly-formed word from Dr. Roget, in whose 'Thesaurus of the English Language,' we believe it was first proposed.

points of light, which has hitherto been considered as a certain indication of a stellar constitution, can no longer be accepted as a trustworthy proof that the object consists of true stars."

Mr. Huggins adds to the account of these observations the following reflections on the "nebular hypothesis" of Sir William Herschel, and on the place or position, among the bodies of the universe, of the nebulæ which he has discovered to give a gaseous spectrum:—"It is worthy of consideration that all the nebulæ which present a gaseous spectrum exhibit the same *three bright lines*; in one case only, 18, H. iv., was a fourth line seen. If we suppose the gaseous substance of these objects to represent the 'nebulous fluid' out of which, according to the hypothesis of Sir William Herschel, stars are to be elaborated by subsidence and condensation, we should expect a gaseous spectrum in which the groups of bright lines were as numerous as the dark lines due to absorption which are found in the spectra of the stars. Moreover, if the improbable supposition be entertained, that the three bright lines indicate matter in its most elementary forms, still we should expect to find in some of the nebulæ, or in some parts of them, a more advanced state towards the formation of a number of separate bodies, such as exist in our sun and in the stars; and such an advance in the process of formation into stars would have been indicated by a more complex spectrum."

"My observations, as far as they extend at present, seem to be in favour of the opinion that the nebulæ which give a gaseous spectrum are systems possessing a structure, and a purpose in relation to the universe, altogether distinct and of another order from the great group of cosmical bodies to which our sun and the fixed stars belong."*

A list of Mayer's now celebrated Essays may appropriately introduce a statement of authorities consulted in the preparation of this and the preceding articles. Some references made in the text or notes are not here repeated. As before, the authors cited are not to be considered responsible for anything in these pages, but what is expressly ascribed to them, or distinguished as quotation:—1. 'Bemerkungen über die Kräfte der unbelebten Natur,' von J. R. MAYER.—*Annalen der Chemie und Pharmacie*, May, 1842, vol. xlii. pp. 233—2. 'Remarks on the Forces of Inorganic Nature.' Translated by G. C. Foster, M.A.—*Philosophical Magazine*, November, 1862; fourth series, vol. xxiv. pp. 371—377. 'Résumé.' By Prof. Tyndall.—*Ib.*, May, 1863, vol. xxv. pp. 378—387. 2. 'Die Organische Bewegung in ihren Zusammenhange mit dem Stoffwechsel.' Heilbronn, 1845. 'On Organic Motion in its connection with the Metamorphoses of Matter.' 'Résumé.' By Prof. Tyndall, under the title of 'Notes on Scientific History.'—*Phil. Mag.*, July, 1864; fourth series, vol. xxviii. pp. 25—51. 3. 'Beiträge zur Dynamik des Himmels in

* 'Proceedings of the Royal Society,' for January 26, 1865; vol. xiv., pp. 39 to 42 This short but philosophical paper offers some suggestions of great importance relative to the practical investigation of the irresolvable nebulæ worthy of the attention of all sidereal astronomers.

populärer Darstellung,' von Dr. J. R. Mayer. Stadtarzt in Heilbronn, 1848. 'On Celestial Dynamics.' Translated by Dr. H. Debus, F.R.S.' *Ib.*, April, 1863, vol. xxv. pp. 241 *et seq.*, in all nearly forty-three pages. 4. 'Bemerkungen über das Mechanische Æquivalent der Wärme.' Heilbronn and Leipzig, 1851, 'Remarks on the Mechanical Equivalent of Heat.' Translated by G. C. Foster, M.A. *Ib.*, *Supplement*, June, 1863, pp. 493—522. WATERSTON, W. J. M., 'On Dynamical Sequences in Kosmos.' *Athenæum*, 1853, September 17, p. 1099, in Account of Proceedings of British Association. THOMSON, Prof. WILLIAM, 'On the Mechanical Energies of the Solar System.'—*Trans. Roy. Soc. of Edinburgh*,' vol. xxi. pp. 63—80. 'Physical Considerations regarding the possible Age of the Sun's Heat.'—*Report of Twenty-first Meeting of the British Assoc. for the Advancement of Science, held at Manchester in Sept.*, 1861. Trans. of Sections, p. 27-28. SMYTH, Prof. C. PIAZZI, 'Suggestions connected with the Carrington and Hodgson Solar Phenomenon of 1st September.' *Memoirs of the Roy. Astron. Soc.*, vol. xxix., TYNDALL, Professor, 'Heat considered as a Mode of Motion.' London, 1863. Second edition, 1865. DE LA RUE, WARREN, F.R.S., 'Comparison of Mr. De la Rue's and Padre Secchi's Eclipse Photographs.' —*Proceedings of the Royal Society*, vol. xiii. pp. 442. HUGGINS, WILLIAM, F.R.A.S., and MILLER, Professor W. ALLEN, V.P.R.S., 'On the Spectra of some of the Fixed Stars.'—*Philosophical Transactions*, 1864, p. 413—435; with a 'Supplement on the Spectra of some of the Nebulæ, by the former.—*Ib.*, p. 437—444.

A view of the actual condition of our knowledge respecting the relations between solar and terrestrial magnetism, may be obtained from the following paper, communicated to the Royal Society in May, 1864, and published: 'A Comparison of the most notable Disturbances of the Magnetic Declination in 1858 and 1859, at Kew and at Nertschinsk; preceded by a brief Retrospective View of the Progress of the Investigation into the Laws and Causes of the Magnetic Disturbances.' By Major-General Edward Sabine, R.A., President of the Royal Society.—*Phil. Trans.*, 1864, part ii. pp. 227—245.

London Institution, October, 1865. E. W. BRAYLEY.

Distribution of heat within the Sun.—While this article was passing through the press, M. Chacornac addressed a letter to Mr. De la Rue, requesting him to announce to the Royal Astronomical Society the conviction at which he had arrived, that the interior of the sun (called the *nucleus* in the preceding pages) is *at least* equally luminous with the photosphere. Mr. De la Rue accordingly made this announcement from the chair, at the first meeting of that society for the session, on November 10th; but expressing, at the same time, as might have been expected, his dissent from the conclusion of M. Chacornac. That conclusion, however, is in accordance with the view taken in these articles, that the heat of the sun is greatest in the interior, and gradually diminishes outwards; the temperature of the photosphere still transcending all terrestrial temperatures to an unknown extent.—See Companion, 1864, p. 51; 1865, p. 54; present article, pages 78, 89. 90.

VI.—WORKING MEN'S INDUSTRIAL EXHIBITIONS.

Within the last two years the system of Working Men's Industrial Exhibitions has become developed to a considerable extent. The great measure of success which attended the formation, in March, 1864, and, later still, in February, 1865, of the South London Working Classes' Industrial Exhibition, combined with the yet more extraordinary results arising from the triumph of a similar experiment in North London, may fairly be regarded as having in no slight degree formed the more immediate inducements which led to the establishment, with more or less success, of similar institutions elsewhere. These manifestations of working-class intellectual and industrial progress must undoubtedly be classed among the results of the International Exhibitions of 1851 and 1862. In those magnificent expositions of industrial art, the loom, the forge, and the work-bench, displayed their peaceful triumphs. The finest efforts of mechanical skill and ingenuity vied in popularity and attractiveness with the choicest examples of manufacturing taste and expertness; but, with a few honourable exceptions, the real authors of these splendid trophies of modern industrial advancement remained unknown, except to a few of their fellow-workmen, the credit due to the result of their labours being bestowed upon those who had not unfrequently had the least to do with the same. Of course, in some instances, the handicraftsman was merely the instrument employed in carrying out or perfecting the design or invention of his employer; but the cases were not few in number where the whole of the credit belonged of right to the artisan. This non-recognition of the talents and skill of the individual operative formed the leading working-class objection to the establishment of such expositions as those of 1851 and 1862. Labour could not help feeling somewhat jealous of the success achieved by capital, and the same discontented spirit which has been at the bottom of so many strikes, and other oft-times foolish and mistaken acts of hostility on the part of labour towards capital, led to a widely-spread impression that the employers, as a class, had usurped the honours which should, by right, have been bestowed wholly upon the employed; although it was frankly admitted that without the assistance of capital, and the resources at its command, many of our grandest industrial victories could never have been obtained. But the real honour has to be divided equally between the two great divisions into which the industrial world is divided. It is to the cordial union of capital and labour—the earnest co-operation of both employers and employed; that we must look principally for the maintenance and continued development of our mechanical and manufacturing superiority. This, however, is a lesson which the great bulk of our artisans and operatives, in common with many of their employers, have yet to learn. Capital can no more do without the assistance of labour, than labour can do without that of capital. If a proof of this was required, it would be readily supplied by the usual contents of a "working-class industrial exhibition." Such a display affords to working men a most unerring test of the various points in which their relative strength or

weakness are chiefly to be found. Viewed in this light, these institutions can scarcely fail to become instrumental in effecting considerable improvements in the industrial character of those for whose advantage they have been expressly established.

But the formation of these institutions was at first attended with many practical difficulties. To use the words of an able writer on the subject: "Prejudices on the part both of the upper and lower classes were to be combated and conquered; the sympathies of those able to give the scheme efficient help obtained, and the active co-operation of the working men themselves—without whose aid the idea would never have been realised—secured." To effect this required a combination of circumstances which were happily found to exist in the case of the South and North London Exhibitions. The promoters of the South London Exhibition declared their principal objects to be the providing of some efficient and popular means whereby the working man might be induced to spend his leisure time more sensibly, profitably, and innocently than amid the contaminated atmosphere and questionable enjoyments of the public-house. To effect this extremely desirable result, they felt that they must originate some kind of undertaking in which those for whose benefit it was primarily designed should be led to take an especial interest. This occasioned them to contemplate the idea of an industrial exhibition, to consist of articles contributed principally by working men and working women, and the affairs of which should be managed, as far as possible, solely by working men. At first, the scheme appeared somewhat Utopian in its nature, but the results of co-operation in Lancashire and Yorkshire had demonstrated in the most conclusive manner the immense power and advantages which the working classes could procure for themselves by adopting the principle of mutual self-help, although they had yet to learn its value and importance as applied to the establishment of industrial exhibitions. As in the case of the Working Men's Clubs, there was required in the formation of the exhibition committees a mixture of members belonging to a somewhat higher social grade with the simple working-man element. Accordingly, we find on the lists of the South London Committee the names of a few who, by reason of their improved education, business-like habits, and general experience, were enabled to modify and bring into a practical and successful form the various suggestions which, in less-experienced and less judicious hands, might speedily have proved an utter failure. Under the skilful and energetic guidance of Mr. G. M. Murphy, a kind-hearted and benevolent individual, employed in connection with Surrey Chapel as a missionary amongst the poor of Lambeth, active arrangements were at once commenced for holding a working-class industrial exhibition in the spacious building known as the Lambeth Baths, situate in the Westminster Road, one of the entrances being in the New Cut.

The Exhibition managers consisted of the "Committee of the Surrey Chapel Southwark Mission for the Elevation of the Working-Classes," and the "Working Men's Committee of the Hawkstone Hall Sunday Evening Services," under the presidency of the Rev. Newman Hall, LL.B. The exhibitors were reminded that the exhibition

could only be regarded in the light of an experiment, and that as it was mainly conducted by working men, it was earnestly hoped that all who took part, in any way whatever in it, would endeavour to promote its success. All exhibited articles were to be brought, shown, and removed at the exhibitors' own expense; the committee finding the various stands and space requisite for the purpose. Each exhibitor received a free pass for his personal use; the public being admitted on payment of twopence each, children under twelve being charged half-price. The price of the season tickets was fixed at sixpence each. The articles exhibited were divided into nine classes:— useful, ingenious, ornamental, scientific, artistic, literary, amusing, curious, and miscellaneous. The number of exhibitors was 144, including representatives of the following trades and occupations:— carpenters, chimney-sweeps, shopmen, postmen, whitesmiths, cabinet-makers, printers, joiners, ironfounders, modellers, labourers, engineers, potters, stone-sawyers, coppersmiths, masons, brushmakers, tailors, bookbinders, seamen, paper-glazers, electrotypists, upholsterers, shoemakers, engineers, gardeners, boat-builders, cork-cutters, and others. In the first class, that of "useful articles," a chimney-sweep exhibited an improved water-filter, while a painter displayed the results of his ingenuity in some "improved anti-garroting cravats." Amongst the articles of an "ingenious" nature was a button-hole cutting machine, made by a smith; also a cloth table-cover, containing 4,700 diamond-shaped pieces, made by a postman; and a silk shawl, containing "27,000 yards of silk" (ribbon, it is to be presumed), made by an "evangelist." In the "ornamental" and "scientific" classes, several objects of much interest were displayed, including specimens of the electrotypist's art; a shoemaker's upright bench, which enabled the operative to dispense with the "unhealthy seat;" a hydrogen-gas lamp of novel construction; models of steam-engines; designs for model cottages, and a mahogany portable lever copying-press. The "artistic" and "literary" classes contained a large number of paintings and drawings, in which, however, the intention was more commendable than the execution. A hair-dresser exhibited a series of plaster models, including "Moses breaking the Tablets," and other ambitious attempts; several exhibitors displayed sketches in oil, water-colours, and pencil, chiefly copies from the large pictures in the *Illustrated London News* and the *British Workman*, while two seamen contributed Berlin work representations, neatly worked by themselves, of ships and other nautical subjects. The opening ceremony, with which the exhibition was inaugurated, was presided over by the Earl of Shaftesbury. The large amount of support awarded to the exhibition during the period it remained open, and the manner in which it proved self-supporting, showed that its promoters had acted wisely in ushering it into existence.

Stimulated by the success of the Lambeth experiment, preliminary arrangements were commenced by a committee connected with the Lamb and Flag Ragged Schools, Clerkenwell, for repeating the attempt in North London. Had the original intention of confining the proposed exhibition to amateur productions of the inhabitants of Clerkenwell been maintained, the enterprise would have differed in no material

point from its Lambeth predecessor; but to quote the excellent account* compiled by one of the seretaries of the North London Exhibition, and from which many of the following details have been collected: "The willingness of several working men to take the matter up upon independent grounds, to accept the labour of its management, and to take the responsibility of its success, caused the proposal to assume a character of its own, and at once alienated it from purely philanthropic association." Mr. W. J. Watts, a person who appears to have occupied in North London a position somewhat analogous to that held by Mr. Murphy in Lambeth, had been the original promoter of the movement in Clerkenwell; but, on the formation of the new committee, he readily transferred his efforts, his untiring energy and patience contributing in no small degree to the success of the project. The committee was formed so as to represent as much as possible the working classes themselves; and it was decided that the exhibition should be open to the inhabitants of the various parishes forming the metropolitan northern district, and should consist of "objects manufactured by the exhibitors, either as specimens of skilled workmanship, or examples of self-taught handicraft." At first the display was intended to have taken place in the largest schoolroom procurable, but the increasing number of demands for space led to the hiring of the Agricultural Hall, at Islington, in which to hold the exhibition. A guarantee fund, including the names of Mr. Samuel Morley and Miss Burdett Coutts, was formed for the purpose of covering any deficit which might arise, should the exhibition prove a failure; and on the 17th of October, 1864, the promoters had the pleasure of beholding the formal opening of the North London Working Classes' Industrial Exhibition, by Earl Russell, who, in a short address, declared that the manner in which the enterprise had been carried out afforded "another proof that the working classes of London were, as he believed, the highest working classes in the world," a compliment not wholly undeserved. So great was the popularity of the North London Exhibition, that during the first week it was visited by no less than 62,412 persons, exclusive of exhibitors and others possessing free admissions; the total number of visitors during the eighteen days during which the exhibition remained open being 196,926. The receipts actually exceeded the expenditure by about *eight hundred pounds!* The influx of such a considerable number of visitors led the committee to provide musical entertainments of a superior kind for the amusement of those who, from the crowded state of the hall, were unable to inspect the various articles exhibited. The number of exhibitors was 934, and the articles exhibited were grouped into the following eight divisions: Skilled workmanship; amateur productions; inventions, &c.; mechanical models; architectural, marine, and other models; artistic objects; ladies' work; and miscellaneous. The general character of the articles displayed showed an immense improvement upon those in the Lambeth Exhibition. There was a larger degree of taste and ingenuity observable, a circumstance which was in some degree attributable to the fact that many of the exhibitors belonged to a more skilled class

* 'A Memorial of the North London Working Classes Industrial Exhibition of 1864.' Edited by J. F. Wilson, Hon. Secretary of the Space Committee. London. 1865.

of artisans than those whose contributions had been displayed at Lambeth.

On February 1, 1865, a second Industrial Exhibition was opened at the Lambeth Baths, the inaugural ceremony being attended by the Right Hon. W. F. Cowper, M.P., First Commissioner of Works, and other gentlemen. In originating this fresh exhibition, the promoters declared themselves animated by two reasons:—first, that the first exhibition laboured under the peculiar difficulties inherent to all new projects, and, therefore, was not a fair indication of the talent of the working classes south of the Thames; and next, as the idea seemed to take deep root, and spread far and wide, it was determined to try the experiment as to whether an exhibition holding out pecuniary prizes as a stimulant and a reward could be as successfully and as satisfactorily conducted as one which, like the former effort, depended merely upon honorary distinction. The new attempt proved completely successful, both in the increased number of exhibitors and the improved character of the articles exhibited. The number of exhibitors was 630; the number of visitors being 124,141; and the receipts 1,295*l.* 3*s.* Had the space at the command of the Committee been adequate to the demand, the number of exhibitors would easily have been doubled. For the sake of simplification, the number of classes was limited to four:—artistic, mechanical, general, fabrics and fancy work. In the first division there were 220 exhibitors; in the second, 215; in the third, 124; in the fourth, 76.

The largest attendances were upon the Saturday and Monday evenings, when the interior of the exhibition presented a remarkable and suggestive spectacle. In previous years the approach of the winter season had beheld the Lambeth Baths devoted to exhibitions of a very different character. At one time they would be in the hands of several of the pugilistic fraternity, who invited the public to step in and witness displays of "the noble art of self-defence;" anon they would be transformed into a "penny gaff," or become the receptacle of the wax-work glories of a New Cut Mrs. Jarley; occasionally making, by way of variety, their appearance as a circus. Situate in the midst of a poor and densely-populated neighbourhood, they had no lack of patrons, the majority of these being children and young persons of both sexes, whose morals were certainly not considerably improved by the class of entertainments to which the baths were devoted. Mr. G. M. Murphy and his colleagues perceiving this, determined to make an attempt to hire the building during the winter season, when it was no longer required for bathing purposes. With the assistance of Mr. Samuel Morley and other gentlemen, they were enabled to accomplish their purpose, and for the last two or three years the Lambeth Baths Temperance Meetings have been one of the most popular institutions in the south of London. Those who remembered the interior of the building when fitted up as a wax-work show, or as a circus, could not fail to have been impressed with the contrast presented by its conversion into an industrial exhibition. The walls were adorned with paintings, drawings, ornamental devices, quilts, and specimens of textile fabrics; while the counters and shelves, covered with red cloth, teemed with objects, on the production or manufacture of which

working-class talent and ingenuity had been exerted to the uttermost. Here a hair-dresser exhibited a life-size statue of Lady Macbeth; there a cutler showed a basket of wax fruit; while yonder a musically-inclined brass-finisher displayed a well-executed harmonium with eight stops. At every step there was something to attract attention. Designs for wall-papers, transparencies, wrought-iron panels, specimens of pottery, photographs, maps, wood carvings, sculptures, casts, models, sewing-machines, perambulators, tables, washing-apparatus, velocipedes, pumps, cutting-machines, lamps, engines, fountains, musical instruments, cases of stuffed birds, aquariums, mechanical contrivances, artificial flowers, Berlin-wool pictures, and a vast number of other articles testified to the manner in which many of our London working men and working women had delighted in employing their scanty leisure time. The most remarkable part of the exhibition was, however, the visitors themselves. The noisy crowd of ragged, unwashed urchins; keen-eyed, restless thieves; and boldfaced, shameless prostitutes had disappeared, and were replaced by a ceaseless stream of men, women, and young persons of the true working-class stamp. There was no mistake about *them*. You saw the engineer in his oil-stained jacket; the carpenter with his coat yet redolent of the odours of the workshop; and the mason, whose apparel rivalled in whiteness that of the baker. They felt quite at their ease, for it was their own exhibition, formed by themselves, and supported by themselves. No wonder they were proud of it. They had good reason to be so, for its success marked the commencement of another epoch of working-class progress. In that building, filled with productions of working-class industry, the crowd of visitors surged through from morning till night; but, although there was occasionally much unavoidable crowding, the daintiest lady in Belgravia, had she been present, would not have heard a word that could have brought a blush to her cheek. These hard-working men and women were of a different stamp to those that loitered about the doors of the New Cut gin-palaces, or leered at the ragged dirty courtesans who stood, arm a-kimbo, at the entrances to the repulsive courts and lanes which abound in this part of the metropolis. It would have done good to the heart of the veriest misanthrope that ever existed to have heard the tones of honest pride and exultation with which several of the visitors directed attention to the handiwork of some friend or relative. "Our John made that ship;" "My husband drew that picture;" "There's Willie's drawing," and other exclamations were continually heard on all sides; and if by chance a stranger uttered a few words of commendation respecting any article, it was repeated from lip to lip until it reached the individual who naturally felt the most interest in any criticisms on his own productions. There were a few policemen present, but their duties were of a somewhat ornamental character, for, except walking up and down, they had very little to do. There were no disturbances, no quarrels, no attempts at wilful damage, no thefts. All went merry as a marriage bell, and from first to last the whole experiment proved an unqualified success.

These three exhibitions were followed by several others in various parts of the metropolis, the most ambitious of which was the West

London Working Classes' Exhibition, held in the Floral Hall, Covent Garden; and which, subsequently, proved a disastrous failure. There were 1,087 exhibitors, and the guarantee fund amounted to 2,500*l.*, while the general character of the exhibition was of a really superior kind; but through the ill-advised hire of the Floral Hall, which was taken at an enormous rental, under an agreement which prohibited the performance of music, it proved a pecuniary failure.

Another failure, but on a minor scale, was that known as the East London Working Classes' Exhibition of Arts and Industry, held at the Beaumont Institution, Mile End Road. In this there were 290 exhibitors, and the collection contained many articles of an interesting and meritorious nature, but the locality was ill chosen, and the number of visitors consequently too few to defray more than the expenses. Another exhibition held soon afterwards in the same neighbourhood proved more successful. This was the East London Working Classes' Industrial Exhibition, held in St. Mary's Schools, Whitechapel Road. There were 742 exhibitors, and many of the articles exhibited were of a superior kind. From the very first, the exhibition proved popular with the industrial community, the number of visitors during the twenty-four days it remained open being not less than 50,000. The Wandsworth Industrial Exhibition was another successful experiment. It was originated by the members of the Wandsworth Working Men's Institute (indeed most of these expositions owe their existence to the energy and perseverance of the Working Men's Clubs and Institutes), and remained open about three weeks. Amongst the guarantors were twenty-one working men, who put their names down for 1*l.* each. The number of exhibitors was 135, the majority of their productions being of an artistic nature. Amongst the objects foreign to the actual occupation of the producer, were a ship worked in Berlin-wool by a bricklayer; a group of skeleton flowers by a cook; fancy beadwork by a private soldier; two violins by a bricklayer's labourer; a pair of boots by a newsboy; a silk loom by a bookseller; a model of an engine by a hatter; a watchstand by a stone mason; a model of a green-house by a schoolmaster, and so forth. Many of the prizes offered in connection with these exhibitions having been gained by children and young persons, the "Clerkenwell Juvenile Industrial Exhibition" was organised with a view to being opened on November 1, 1865, in St. Paul's Schoolrooms, Allen Street, Clerkenwell, no one above the age of nineteen being allowed to exhibit articles, except by special permission. The International Reformatory Exhibition, although scarcely coming under the head of working-class expositions, deserves a few words of notice. It was held in the Agricultural Hall, Islington, under the direction of the committee of the Reformatory and Refuge Union. The comprehensive character of the exhibition is best shown by the following list of some of the articles exhibited:—Woollen and other clothing, also boys' caps; boots and shoes, clogs, and wooden shoes; brooms and brushes of all kinds, and blacking; articles of furniture, and cabinet making generally; carpenters', turners', and wheelwrights' work, and wood chopping; printing, plain and ornamental, and bookbinding; mats and sacks; paper bags, envelopes, and card boxes; models, toys,

and games; bricks, etc., articles in iron, coopers' work, agricultural produce, articles made of straw (bonnets, baskets, fancy goods, &c.); spinning and weaving, knitting and netting, lace, embroidery, and plain and fancy needlework of every description, etc. In the centre of the hall were exhibited several skilfully-designed trophies, one of which attracted considerable attention. It consisted of a pyramid of firewood, made by the inmates of the Boys' Home, Wandsworth. The pyramid was hollow, and possessed a door which led to a pretty-sized apartment. The number of bundles of firewood used in constructing the edifice was 4,000. A series of workshops were also erected, in which several hundreds of boys and girls worked at their respective trades and occupations. The articles exhibited came from English, Scottish, Irish, Canadian, American, Belgian, French, Spanish, Portuguese, Italian, Austrian, Russian, and other Reformatories; the total number of institutions represented being about two hundred. Another characteristic exhibition was that which, under the name of the "Anglo-French Working Class Exhibition of Skilled Work," was held at the Crystal Palace, during the months of August, September, and October, 1865. It was professedly promoted by a number of working men in London and Paris, for the purpose "of celebrating the fiftieth anniversary of peace between two powerful nations, in a manner at once appropriate and suggestive." The larger number of the contributors were English, the French exhibitors being comparatively few. Many of the articles exhibited had been previously shown in industrial exhibitions, while the admission of things produced by manufacturing firms deprived the display of much of its working-class character. This led to its failure.

In the country the most important working-class industrial exhibitions have been those at Wakefield, Nottingham, Reading, Birmingham, Preston, Plymouth, Bristol, Manchester, and other places. In these the local handicrafts were, upon the whole, adequately represented. At Manchester the exhibition led to the formation of a Workman's Art Association. The Wakefield exhibition was very creditably got up, one of the principal features being the display of "Union cloths," which occupied a case seventy-four feet in length. These cloths were the production of Morley manufacturers, and illustrated a comparatively new branch of textile industry. At Birmingham the number of exhibitors was 753, the majority of whom were handicraftsmen of the town and neighbourhood. At Bristol the number of exhibitors was 696, very many of whom displayed the fruits of their ingenuity in models of yachts and other vessels. As in other exhibitions, there were plenty of examples in which the articles shown were made by individuals engaged in occupations of a distinctly opposite nature. Thus, a woollen-draper exhibited a set of skulls and cross-bones carved in ivory; a policeman, specimens of fancy wool work; a quarryman, an oil painting; a second policeman, a case of moths and butterflies, collected during leisure hours; a shipwright, several specimens of ornamental needlework; and so on through a somewhat lengthy list. Amongst the "ingenious" articles was a cask which would contain 365 different kinds of liquid, at any one time, without mixing them. This was made by a cooper.

But neither the metropolitan nor provincial displays approached anything like the systematical attempt of the London Operative Coachbuilders, in their recent exposition of localised industry. This important exhibition was held in February last, at the Coachmakers' Hall, Noble Street, Cheapside, and was intended by its originators to "develope the wants and aspirations" of the times in which they lived. "Education," said they, "has reached most working men, and assisted them in maintaining a high degree of manipulative skill; they are now desirous of obtaining a more scientific knowledge of the laws and principles which govern their work. The French, German, and Belgian coachmakers (desirous of rivalling the English) have availed themselves largely of the technical schools and schools of design in their respective countries, and they have already much increased their skill in construction, and are approaching us closely in the art of ornamentation and finish. Our English mechanics are equally desirous of improving themselves, and by comparing their *own* work in its various stages in such exhibitions as the present, and by planning out their work beforehand, as may be seen in the drawings around us, desire to extend their knowledge of the technicalities of their art, and obtain new ground on which to set their feet preparatory to a higher development of their craft." Could the idea thus expressed be properly carried into effect by other trades, the results on our national industries would be of a most extensive and important character. But how far were the anticipations of the Operative Coachmakers' committee realized? There were not less than 140 exhibitors, the majority of whom belonged to the handicraftsmen class, and who were stimulated to mutual emulation by the offer of prizes, ranging in value from half a guinea to ten guineas, for the best specimens of inventive or professional skill. But although the adjudicators spoke well of the exhibition "as a whole," they were compelled to declare that for several of the prizes there was no competition, while in other instances the articles exhibited were not of sufficient merit to justify the award of the special prizes announced. As in the case of the South and North London Exhibitions, the weakest portion of the coachmakers' exposition was that in which some knowledge of ornamental art was necessary to ensure anything like an approach towards perfection. "Producing as they (the operative coachmakers) do," said the adjudicators, one of whom was the Marquis of Lansdowne, "work of the highest qualities as to soundness and finish (apart from ornamentation) they do not exhibit high powers of design, nor any great taste for drawing." So far as mere mechanical excellence is concerned, the English operative coachbuilder has few rivals; but the moment that he begins to compete with his continental brethren in matters requiring artistic taste, he becomes convinced of his inferiority in this one respect.

It is here that these exhibitions might be rendered really serviceable to the working classes, and to the general community, by pointing out to our artisans their educational deficiencies, and so exciting them to remedy the same. It has been justly observed that "the real character of men of all ranks is formed in their leisure moments far more than in their hours of toil. It is only when our work is of a distinctly

intellectual kind that it tells very much upon our disposition or habits." One of the principal means by which the character of the working man is destined to become improved, and his social condition efficiently ameliorated, is by the better employment of his leisure time. He has shown in many ways that he is capable of nobler things than merely sitting on the alehouse bench, or idling his time at the street corner; but, until a comparatively recent period, he was regarded with suspicion, if not fear, by many of those who occupied a higher position in the social scale, and who seldom allowed him to attempt anything in the way of intellectual self-improvement, lest he should ripen into a Robespierre or a Marat. These people never dreamed that a time would come when no less a person than the Archbishop of York would stand upon the platform and bravely declare that he was never afraid of information, or of the spread of knowledge. "I am," said the right-minded prelate, at the recent opening of an industrial exhibition, "only afraid of knowledge when split in two—a man half-educated." The increased diffusion of knowledge amongst the industrial classes has had the effect of rendering them more conscious of their educational deficiencies, and more determined upon rectifying the same. We can perceive many indications of this, especially in their industrial exhibitions, which, but for the existence of this earnest and widely-spread desire for self-improvement, could not have obtained a tithe of the success which has been bestowed upon them. As before mentioned, the tastes of the exhibitors appear to reside in a mechanical and artistic direction. No matter where the exhibition may be originated, or be held, the principal portion of the contents contributed by the operatives themselves is pretty sure to consist of mechanical models, and drawings in oil, water-colours, or pencil. These latter are generally the most numerous, and comprise specimens of every possible description, from the ambitious attempt at copying one of the masterpieces of Raffaelle, to the modest little vignette, in which the patient earnestness of the workman-artist has almost enabled him to overcome his deficient art education; but, no matter whether the collection be large or small, its prevailing characteristic is invariably found to be an utter absence of true artistic taste. The drawings are, as a rule, vilely executed, the paintings little better than mere daubs, while the "original designs," as they are pretentiously termed, are not unfrequently utterly absurd as works of art. Yet in all this we can perceive that instinctive yearning after the possession of those art tastes, to develop and foster which our Schools of Art were specially created. And here we would call attention to a seeming anomaly. On the one hand, we have Schools of Art, organized and maintained, wholly or in part, at great expense by the Government, complaining of the lack of pupils; while, on the other hand, we have hundreds of artisans patiently practising habits of the strictest self-denial and steady perseverance for the purpose of acquiring the very description of art-education which the Government schools were expressly intended to afford. Why should the two be practically divorced from each other? Of the hundreds of artisans whose drawings and paintings cover the walls of our industrial exhibitions, not a tithe have been inside the walls of a School of Art.

Where it has been otherwise, the results are extremely striking. There is a firmer and more vigorous style of drawing, increased attention to necessary details, and a greater boldness of touch. Considering the acknowledged importance of an extended amount of art-education amongst our artisans, it becomes a fit and proper subject for inquiry as to how far the latent love of art, evidenced by the art productions of our industrial exhibitors, might be utilized and rendered both useful and profitable. If the working classes cannot be induced to attend the various Schools of Art, perhaps a system of competitive examinations in drawing in connection with the different industrial exhibitions might prove more successful. At any rate, it will no longer do to reproach the working man with being insensible to the influence of the beautiful and pure in art. It must be remembered that until very recently the picture galleries and art collections, in which this country is so rich, were as a sealed book to him. Unlike the artisans of the continent, he possessed few means of developing or gratifying his artistic instincts. The walls of his cottage were covered with gaudily-coloured prints; miserably-designed plaster casts or earthenware figures decorated his mantle-piece; while the tea-tray, crockery, and other articles needing artistic embellishment, were so many specimens of the vilest and most execrable bad taste. The illustrations in the *Penny Magazine* were the forerunners of those which subsequently, in such serials as *The Illustrated London News* and *The Illustrated Times*, have done so much to familiarize the eyes of the working classes with really beautiful and tasteful specimens of art. Photography, with its wonderful fidelity to nature, has also had a large share in promoting the art-education of the people, by familiarizing them with more accurate representations of persons and places than those to which they had previously been accustomed. In short, the artistic instinct of the working classes has been fully awakened; and the crude, poorly-executed, and oft-times childlike attempts which crowd the walls of their industrial exhibitions, represent their infant aspirations for something better, nobler, and more perfect than the few art pleasures with which they have hitherto been familiar.

In their mechanical productions, the exhibitors have generally been more successful, but even here there has been a general absence of inventiveness. This has arisen from the circumstance that until within the last few months the exhibitor had no protection whatever for any invention or mechanical improvement of which he might be the discoverer. To exhibit an original but unpatented invention was merely to invite its theft by unscrupulous individuals, possessing the capital necessary to render the piracy a profitable speculation. This led to the passing, during the parliamentary session of 1865, of what is popularly known as the "Workmen's Industrial Exhibition Act," whereby that portion of the patent law which refused protection to an inventor who had publicly exhibited any article before it had been patented, was modified so far as articles displayed in working class industrial exhibitions were concerned. To secure the advantages conferred by this Act, it is necessary that the exhibition should be certified by the Board of Trade. The effect of this measure has been to occasion a larger display of inventive power on the part of

the exhibitors. At the Birmingham Industrial Exhibition many specimens of inventive genius were exhibited which, but for the protection afforded by the Industrial Exhibitions Act, would never have been publicly displayed. Leaving the inventive element aside, the mechanical models are generally distinguished by an exactness of construction, delicacy of finish, and excellent workmanship, sometimes marvellous. This is particularly the case in the various models of steam-engines and machinery, many of which are wonderful in their nicety of execution. At the Birmingham Exhibition, a working jeweller exhibited a penknife and a pair of scissors each weighing only two grains; another exhibitor displayed his ingenuity in a well-worn sixpence, which he had drilled from edge to edge without the slightest bulge; while a third artisan showed a miniature watch, the size of a threepenny piece, weighing only four dwts., and keeping excellent time. It was complete in every respect, and the various parts, mainspring included, were made by the exhibitor, who was occupied for four years with his task. In the North London Exhibition a weighing-machine was shown which would display the ten-thousandth part of a grain's weight; and in other exhibitions objects equally remarkable for their minuteness or accuracy were not unfrequent. The largest degree of success was, however, achieved in those instances where the exhibitors displayed specimens of their particular handicrafts. Here they were perfectly at home, and knew what they were about; going far towards supplying a remedy for the grievance complained of by so many working people, when they asserted that in the International Exhibitions of 1851 and 1862, the artisan was robbed by the capitalist of his just meed of recognition. At the East London Exhibition, a case of mathematical instruments, the most perfect and workmanlike of their kind, was exhibited by the actual maker; and in many other instances journeymen watchmakers, jewellers, shoemakers, opticians, electrotypists, cabinet-makers, masons, sculptors, chasers, painters, decorative artists, gilders, and many more, gave evidences of unusual proficiency in their respective vocations. This feature of the industrial exhibition system is one which should be encouraged in every possible way, because its tendency is to raise the standard of professional skill amongst the workers, and thus assist in improving the general character of their respective trades.

The most objectionable feature, and one too, unfortunately, the most common, of an industrial exhibition, is that comprising the various examples of misplaced ingenuity in which some minds love to indulge. For instance, we have a chair and stool made of 20,000 pieces of gnarled pollard oak, which took some seven years to construct; a tea-caddy containing 2,140 pieces of leather; a model of a village, the sole tool of the modeller being a penknife; and so forth. Objects of this character are merely so many mistakes, and owe their existence to an error widely prevalent amongst working men, who, as a class, entertain the notion that the greater the amount of labour bestowed upon an article the larger will be the increase in its intrinsic value. They also seem to believe that articles produced by self-educated men are of greater value than would be the same if made by properly trained or educated workmen. It does not add much to the credit

of a workman to have spent six months in making a tea-caddy, or an inlaid table, when, with the proper tools, he could have done it in less than one-third of the time. The working man should learn to avail himself of every mechanical appliance within his reach, not to dispense with them. The more readily he adopts every real improvement in his trade or profession, the more nearly will he approach the highest attainable degree of skill in his particular branch of productive or manufacturing industry. We must judge more by the *result* than by the *process*, and until the truth of this dictum is generally recognised by the exhibitors themselves, the value of working-class industrial exhibitions, as a means of artistic and industrial improvement amongst the masses, will be considerably lessened.

The remarkable degree of success which has attended the establishment of the working classes' industrial exhibitions, described by us, has led many to predict the possibility of their being a means of producing results otherwise unattainable. It is asserted that they will become powerful adjuncts in promoting the elevation of the industrial community, and be the means of raising up a class of workmen who, for the possession of skill, artistic excellence, and general judgment, will have no superiors. Here, however, the wish is father to the thought. Before the Workmen's Industrial Exhibitions can become such an efficient agency in promoting the artistic and industrial education of our artisans, their workings will have to be more systematized and many obvious tendencies carefully guarded against. The Committee of the South London Exhibition, in endorsing and re-echoing the warnings of those who have questioned the utility of these institutions, remarked that "great care should be taken to prevent exhibitions of this kind from degenerating into a bazaar, or savouring too much of the shop." They might have added that in no case should the distinctive character of the exhibition be lost sight of. In more than one instance the so-called "industrial exhibition" has been little more than a collection of spurious paintings after the old masters, Indian weapons of warfare, Chinese curiosities, and articles of *virtu*, the *bonâ fide* contributions of the artisans being few and far between. In another case, that of an industrial exhibition, opened under the presidency of the Lord Mayor, at the Agricultural Hall, in September, 1865, the committee have had resort to entertainments and puffing advertisements, which savour more of the music hall than of an institution intended to assist in "promoting the social and intellectual improvement of the working classes." We were told through the medium of flaming announcements, that it was "The greatest attraction of the season!" that it was a "Glorious Success!!" that "money" was "turned away" at the doors, and that the committee had much pleasure in announcing the engagement of an array of talent, comprising "Marcel, the Great Rope Vaulter, on the Low Rope;" "Herr Pio Whautkins;" the "Original Female Christy Minstrels," and other equally delectable attractions. Had the promoters of this precious affair been desirous of casting ridicule on the "industrial exhibition movement," they could not have taken a surer method to accomplish their fatal purpose. The public, fortunately, became aware in time of the real nature of the whole

scheme, with which the originators of the first North London Working Classes' Industrial Exhibition had nothing whatever to do. On the contrary, they have for some time past been busily engaged in maturing a movement which, if successfully carried out, promises to be the most practical, useful, and really serviceable industrial exhibition yet designed for the benefit of the working classes.

"To my mind," said Mr. Gladstone, in his address at the Agricultural Hall, "the present achievement is but a stepping-stone to more important enterprises of the same kind." This sentence formed the motto of the new enterprise, which, under the title of the "Metropolitan and Provincial Working Classes' Industrial Exhibition," is to be opened in August, 1866, at the Agricultural Hall. Contributions will be accepted from all parts of London, the Provinces, Scotland, and Ireland. As on the former occasion, amateur productions will form a special feature, but *the display of uninteresting or trivial objects will not be encouraged.* Skilled workmanship, and articles denoting the exercise of ingenuity, taste, or industry, will be deemed especially acceptable. Small workshops, fitted up with steam power, if so required, will be erected against the walls under the galleries, These will be let under special arrangement to persons who may desire to manufacture and sell articles during the exhibition. Turnery, fancy box making, printing, medalling, envelope making, type-founding, weaving, and other occupations will be allowed to be carried on, and will, probably, form an attractive feature of the exhibition. A lecture hall will also be opened, in which lectures will be delivered upon various subjects in harmony with the aim of the undertaking. Many other equally characteristic features are also contemplated during the course of the undertaking, in entering upon which the committee rightly express their belief that the exercise of the same persevering energy which characterized the management of the former exhibition, tempered with caution, and guided by experience, will secure for it the approval and patronage of all classes.

The rapidity with which the working-class industrial exhibition system sprang into general popularity, and the extensive manner in which its offspring have been multiplied, has led to the expression of a doubt as to the permanency of the movement. It has not been forgotten how other developments of working-class progress, replete with promise, have been nipped in the bud, and prematurely ended. Whether this is to be the case with industrial exhibitions of the character described by us, depends entirely upon the promoters themselves. If these latter have no definitive object beyond merely collecting together a display of working-class productions; or if they over-do the experiment, and repeat the exhibitions too frequently, public apathy and pecuniary failure will be the inevitable result. The direct object of the promoters of these institutions should be to encourage the display of superior workmanship, the development of invention and originality of design, and the promotion of true and correct artistic tastes amongst the working classes. Besides these, there might be various subsidiary aims, such as encouraging young women in the use of the needle, inducing working men and women to make a pleasant and profitable use of their leisure time, and to afford industrial genius

the opportunity of making itself known. To achieve these results requires the employment of an amount of tact and judgment which is to be gained only by experience. It is essential that the promoters of these exhibitions should consist principally of working men, and that they should enjoy the confidence of their fellow artisans. Unless this be the case, the working classes will not take that degree of interest in the project necessary to ensure its success. Supposing such a committee to be formed, it would have certain preliminary details to get through before operations could be said to have fairly commenced. A public meeting would have to be organized for the purpose of ascertaining how far public opinion in the particular locality was favourable to the project. Should the support obtained prove sufficient, the next step requisite would be the appointment of a committee of management, the adoption of a code of rules, and the formation of a guarantee fund. The selection of a fit and proper person to act as secretary will also be a matter of vital importance. He should be an individual of some influence and standing in his district, and be enabled to conduct the general correspondence. Sub-committees will be required to manage and superintend the various details of the exhibition, such as the allotment of space to exhibitors, decorations of the building, arrangement of articles displayed, preparation of the catalogues, sale of refreshments, &c. If this sub-division of labour be properly managed, the task of the promoters will be considerably lightened. Care should be taken not to repeat the blunder of the West London Exhibition, but to study economy, without niggardliness, in preparing the fittings and other essentials. The co-operation of employers will sometimes be found of considerable service, and should always be obtained where possible. Such mutual interchanges of courtesies go far towards producing an improved state of feeling between employers and employed. It is to the long-continued estrangement between capital and labour that we may fairly attribute the origin of many of those extensive strikes and lock-outs which have produced such disastrous results in the industrial world; and if these working-class exhibitions should become the means of conducing—in however slight a degree—to the production of a less antagonistic sentiment towards each other on the part of labour and capital, they will have rendered good service. The classification of the objects exhibited will depend considerably upon the nature of the locality in which the building is held, as well as upon the extent of accommodation afforded by the building itself. The groupings might be roughly divided into—I. Artistic; II. Mechanical and technical; III. Miscellaneous. These, in turn, might be sub-divided into amateur and professional productions, with such other minor classifications as might be deemed necessary. Should it be intended to offer prizes, the adjudication of the same should be entrusted to gentlemen whose competence and disinterestedness are above suspicion. As respects the nature of the prizes themselves, considerable diversity of opinion exists, some contending in favour of money prizes, and others contrariwise, while not a few condemn the prize system altogether. At the North London Exhibition, in addition to the regular prizes, a handsomely got up memorial volume was presented to every exhibitor.

In offering prizes, the remarks of the adjudicators at the Operative Coachmakers' Exhibition should not be lost sight of. A certain standard of excellence should be decided upon, and prizes awarded in proportion as the articles approached such standard. An indiscriminate award of prizes is one of the most fatal errors which can be committed in connection with an industrial exhibition. The more cheaply a reward is obtained the less it is valued. Upon no pretence whatever should the production of trivial or uninteresting objects be encouraged; the leisure time of the workman is too valuable to be thus frittered away. The promoters of such exhibitions would do well to organize a series of special prizes, such as rewards for the best outline drawing from nature, the best outline drawing of subjects specially indicated, the best design for a textile fabric, paper hanging, or article of utility, and so on. Sir Matthew Decker, in 1744, published an "Essay on the Causes of the Decline of the Foreign Trade," in which he urged the importance of English artisans learning to draw and design with something like taste. "A workman," said he, "who has been bred a good draughtsman will be more ingenious in a business that requires skill in drawing than one who is ignorant of it, so his work being better designed, will approve the ingenuity of his apprentices, who won't bear to see an ill-fancied piece of work." The inventive and artistic ability of the working classes has to be guided as well as developed, so as to economize and strengthen the power at present so largely wasted. If the assistance of those entrusted with the management of the Government Schools of Art could be obtained, much might be done in the way of enlightening the exhibitors how their art aspirations might be rendered really serviceable. It is not necessary to dilate any more on this point, but it is necessary to caution the exhibitors from becoming intoxicated with the repeated doses of flattery now so frequently administered by the speakers at inaugural ceremonies. Our really intelligent artisans have made good progress hitherto, they have conquered difficulties which would have deterred a less resolute class, but they have yet a long uphill fight before them, in which the falls may be neither few nor far between. It is only fair to congratulate them on their success so far, but those congratulations should be so worded as to become inducements to renewed exertions. While pointing out to the working man the elements of his success, we must not omit to indicate the sources of his weakness. His moral and intellectual character has undergone a vast and significant change during the last few years, and his industrial exhibitions, if rightly developed and managed, may become the means of yet further elevating his condition. At present, nothing has occurred to render us doubtful of their future usefulness and permanency; on the contrary, there is every reason for believing that—in conjunction with the spread of co-operative societies, working men's clubs, and other institutions of a like character—they are destined to play no unimportant part in that wonderful and happy revolution of working-class character and thought, for which the industrial and social experience of recent years has so fully prepared us.

JOHN PLUMMER.

PART II.

ARCHITECTURE AND PUBLIC IMPROVEMENTS, LEGISLATION, STATISTICS, AND CHRONICLE OF 1864-65.

VII.—ARCHITECTURE AND PUBLIC IMPROVEMENTS.

1. General Progress:—Art and Public Monuments.

If he could persuade himself, as Mr. Ruskin seems to have done, that really good architecture is impossible in such a climate, and under such a condition of civilization or pseudo-civilization, as ours, the task of a critic who has to present an abstract of the architecture of the year would be greatly simplified. Nor less so, if he could take his place with the optimists, and believe that, if the best has not been attained, the art is at least better understood, and practised with more ability, than at any previous period. Adopting neither of these views, it is exceedingly difficult to estimate fairly the work of the year; or to distinguish, with any approach to precision, the actual advance or retrogression, either in taste or purpose, which it signalises. Building is prosecuted to so unparalleled an extent, both in scale and quantity, and the buildings differ so essentially in character and style, whilst the fashion of yesterday is a by-word and reproach to-day, as that of to-day will be to-morrow, that it is almost impossible to apply to them any common standard, or to single out from among the mass what is really representative of the actual power, spirit, and tendency of the leading architects, and the more promising of those who are aspiring to fill their places.

In truth it is not by looking at the work of the year only, or comparing it with that of the past year or two, that we can hope to form a just or even an impartial judgment. Nor would it be fair to those who, toiling amidst the rapid whirl with which building, like everything else, is being hurried forward, are honestly endeavouring to do the best the conditions under which they work admit, if we were to form some lofty ideal of what the art under the happiest circumstances might achieve, and rigidly estimate their productions by that standard. The fairer course, the only one indeed by which we can hope to arrive at a right conclusion, seems to be to look as far as possible with an unprejudiced eye at the best productions of to-day, and compare them in the same spirit with those of five, ten, or twenty years ago.

And if this be done freely and frankly, we cannot but believe that the result will be on the whole reassuring. In some departments there can be no possible room for doubt; and in the others, if the difference which everywhere exists is not, as some believe, really improvement, there is enough to satisfy all but those who are immoveably wedded to the past, that there is on the whole a very evident advance. And the latest stages of the change that has come over the art, are those which afford the greatest promise. The phase which architecture has most recently exhibited has been marked by much eccentricity in design, and much superfluous decoration. But in our newest build-

ings we see—and in it mark the surest promise of a return to sounder principles and purer artistic feeling—more reliance on form, more sense of proportion, simplicity, breadth of treatment, and repose; qualities without which grandeur, or even dignity, the prime essentials of all noble architecture, is impossible. Where there is this endeavour after largeness of style, the effort to treat the building as a whole rather than as an aggregation of parts, there cannot but result some of the true characteristics of fine architecture.

It is easy to see how the opposite system, the putting together of parts, in themselves pretty enough, but in their combination at best picturesque, more often bizarre, and sometimes grotesque, grew into such favour with architects and their employers. The more important buildings of the middle ages, as they have come down to us, were seldom the product of a single mind, not often of a single century. They were added to as occasion required, with a simple regard to the new wants that had to be supplied, and in the spirit of the time in which they were altered. Whether the new parts were in harmony with the old was a minor consideration. Happily the flexibility of mediæval architecture permitted of these additions being made without any marked incongruity; or rather perhaps the mellowing influence of time has softened down any incongruity that may have been apparent when the work was new, and brought the whole into harmony. Where there is not beauty, there is always picturesqueness; in the nobler works not seldom sublimity. It was no wonder, therefore, that when mediæval architecture was studied, with the assiduity and even enthusiasm which have been devoted to it for some years, by amateurs as well as architects, almost to the exclusion of the architecture of every other period, its devotees should have come to regard the accidents of the style as its essential features; and that, as picturesqueness was an almost invariable result of the irregular disposition of the several parts, they should in their imitations have chiefly sought to reproduce the irregularity and the picturesqueness. And this again led almost of necessity to the parts being regarded individually, rather than as members of a whole; to a study of details rather than of the complete structure.

But of late there is evidently a disposition to deal even with mediæval architecture in a less servile spirit; to adapt rather than to copy it, and to adapt it with a view to the purpose of the building. There is still indeed too much of mere imitation. The great deficiency unquestionably is originality, independent thought, individuality. Archæology, as we have repeated year after year, is not Art. A true architecture is the product of its own age; not a reproduction of the architecture, however beautiful, of a past age and an entirely different set of circumstances. This is an invariable law, shown to be so by every genuine style or period of architecture, by the work of every true artist, whether architect, sculptor, or painter. But ours is an imitative generation; and unhappily our imitation is not always of that which is most excellent. Whatever *takes*, whether from novelty, difficulty of execution, costliness, or even eccentricity, is talked of, petted, lionized, and—followed. In architecture, as soon as a peculiarity in style, manner, or material attracts attention, or wins a passing puff of

applause, hosts of young architects rush after, and as they best may, reproduce it. Yet, after all, this occurs mainly among the inferior (though not necessarily inconspicuous) men who always abound in a crowded and abundantly-employed profession. A genuine artist, however wrong he may be in his theory of art, will never be a mere creature of fashion.

As regards style, it is even less easy than two or three years back to decide which is gaining ground. In ecclesiastical architecture, indeed, Gothic still bears undisputed and exclusive sway. It is as true now as ever it was that "no one would dream of building a church in any other style;" but it has not decidedly gained ground in secular structures. In street architecture, indeed, it hardly holds its place. Its fitness for at least one class of civic buildings was, as we pointed out the year before last, conclusively shown in the Manchester Assize Courts, and all that was then said of that building has been fully borne out by experience. But, as was observed at the time, the building was a free adaptation of Gothic, and designed with a clear conception of the object to be attained, and with a comprehensive grasp of the structure as a whole; designed, in short, exactly in the spirit in which a mediæval architect would have designed it: and it is by no means certain that an architect, with an equal mastery of the purpose in view, and the means of effecting it, would not have achieved equal success in another style. Its great success, however, will probably go far to secure its precedence in edifices of this class; and so long as we look to the style of a past age for our model, it is probable that Gothic will be found most in harmony with the sombre majesty which seems proper to courts of law. In street architecture the Italian classic seems regaining its lost ground; but of this there will be opportunity to speak more fully presently. In mansions, the palatial Italian prevails most in the town, Gothic in the country. But here our architects are running into wilder extravagancies than anywhere. In all parts of the country you come upon staring so-called Gothic mansions, bristling with turrets and spires, tall uncouth roofs, and all sorts of odd little points and projections, with the strangest combinations of material and colour, reminding you of nothing so much as magnified Nuremberg toy-houses, and defacing the beauty and disturbing the quiet of many a peaceful nook and pleasant park and sylvan hill-side.

It is satisfactory to observe the increased care and thought bestowed alike on the materials, the decorative features, and minor details of buildings. Brick is being much more employed in the construction of churches; as, on the other hand, stone is growing in favour for offices and warehouses. Coloured marbles, serpentine, polished red and grey granite, the dull red Mansfield stone, terra-cotta, coloured and moulded bricks, are very freely used externally both in the constructive and surface decoration; and when employed judiciously, are of great value. But the tendency is to use them in excess, and where used for the sake of colour, a "spotty" patchwork appearance is too common a result. Carving in like manner is being, in many instances, overdone. Our architects too often forget that carving is not sculpture, and that whilst carefully-designed and well-executed carving, judiciously though

even sparingly applied, adds materially to the richness and beauty of a building, an excessive display of coarse showy carving will assuredly impart to it an air of vulgar pretence. Of an effort made to combine sculpture (statues and rilievi), as distinct from carving, with architecture in the façade of a city bank, an account will be found under Street Architecture (section 6).

Our national works advance slowly. The houses by Palace-yard and Bridge-street have been removed, and the Commissioner of Works announced to the House of Commons that the Government intend to complete the clock tower of the Houses of Parliament by facing the Palace-yard side to correspond with the other. But no other buildings are to be erected around Palace-yard. The scheme of Sir Charles Barry seems to be definitely abandoned. Palace-yard is to be kept as an open quadrangle, and Mr. Cowper proposes to plant it with shrubs and flowers. A subway for the convenience of members is to be made from it under Bridge-street to the Thames Embankment. All this sounds, like most of the worthy commissioner's artistic projects, very *petite*, but very harmless. It won't cost much, it is to be hoped: it will get rid of the present dirty unfinished appearance the place wears, and need not stand in the way of future improvements when less timid counsels prevail.

The Foreign Office makes steady progress. Its great size, now that it has reached its full height, imparts a certain grandeur to it as seen from a little distance. But encumbered as it is with scaffolding and travelling cranes, it is impossible to see the building so as to judge fairly of its general effect. We wait, therefore, till it is clear of its surroundings before attempting to enter upon a critical examination of it. The building, as will be remembered, is divided between the Foreign Office and the India Office: the northern portion, having the grand entrance in Downing-street, being appropriated to the former; the southern part, with the entrance in Charles-street, to the latter. The principal façade is towards St. James's-park. It is somewhat broken in outline, has recessed as well as slightly projecting portions; but the architect appears to have been anxious to preserve as much as would be consistent with his general plan of the symmetry as well as of the stateliness of palatial Italian. The order throughout the first, or principal story, is Corinthian, treated with great care and refinement: the lower order is Tuscan. Polished granite, coloured marbles and other polychromatic decorations are employed in the frieze and elsewhere, as well as a good deal of well executed carving. In this park front are to be a couple of towers: one at the angle of the park and Downing-street, 50 feet square and 150 feet high, and to be crowned with a balustrade and groups of sculpture, indicates the part belonging to the Foreign Office; while the other, farther south and ten feet higher, marks the India Office. The other sides are similar in character but somewhat plainer. The principal entrance leads into the great quadrangle, which will form an important feature in the completed edifice. It is 250 feet by 170, and the buildings which surround it will be a story lower than those in the exterior façade, thereby not only admitting more light and air into the quadrangle, but allowing of some variety in the design. These buildings will have

an open decorated parapet, with sculptured groups and statues on the piers and columns. The India Office encloses a smaller quadrangle.

The proposed enlargement of the National Gallery is referred to in a previous article (ART-COLLECTIONS): here, therefore, it will be enough to say that the Government last session took a vote of 20,000*l.* for the purchase of the ground behind the present building, and that the preliminary steps have been taken for obtaining possession. The new parliament, however, we may hope, will not sanction the costly folly of masking the present insignificant suite of rooms with "an imposing new front." The British Museum remains as it was. At the South Kensington Museum considerable progress has been made with the "permanent buildings," and with the interior decorations; but these also are noticed in the paper before referred to.

Nothing further appears to have been done towards carrying into execution the Government scheme for erecting a National Museum on the site of the Exhibition of 1862. Captain Fowke received the premium for the most successful design, and there the matter seems to have rested. Now that the area is entirely cleared, it is seen what an ample space it affords for the purpose; but the more the subject is considered the more evident it becomes that the situation is quite unfit for a public museum. The object of the Prince Consort in seeking to concentrate the art museums at South Kensington was to render them subsidiary parts of a great University of Art. When the impracticability of that project was demonstrated, the reason ceased for placing any collection intended for the use of the general public in an extreme corner, and for the great bulk of the inhabitants the most inconvenient and inaccessible corner, of London. Unhappily, the Museum of Ornamental Art had already been established there, and it has been so carefully extended and adapted to the tastes of the locality, and such large sums of money have been expended upon the buildings, that its removal is not to be thought of. The South Kensington Museum has become, as it was well described by Mr. Bruce, in supporting the vote for it on behalf of the Government, "a favourite morning lounge for Belgravia," a convenient place for holding semi-scientific, semi-artistic fashionable evening soirées, and a holiday resort for artisans and their families, but hardly a place for study. One such costly local museum is sufficient even for Belgravia. If the other is to be a National Museum, it ought to be placed in the most central and generally accessible locality possible. The Thames Embankment now offers a site in most respects suitable. Towards the immediate neighbourhood of the whole line of it, the traffic from all quarters of the metropolis tends. It will be the finest and quietest thoroughfare in the great city; there will be along it ample room for a series of museums and galleries that may be independent of each other, though not disconnected; and a range of buildings worthy of such a site and dedicated to the public use, seems to be the chief thing wanting to the adequate completion of the undertaking. The ground at South Kensington is exactly adapted for private residences, and would be readily taken for that purpose.

The bill for the Concentration of the Courts of Justice having become law, notices have been served on the owners and occupiers of

the houses that will have to be removed, and the ground will be cleared without delay. No design has, however, yet been prepared for the building, nor is it yet known whether the commission will be thrown open to a public, or confined to a limited, competition. The sum voted for the purchase of the ground, compensation, &c., was 700,000*l*., of which 200,000*l*. may be taken during the current financial year. The site of the building is bounded south by the Strand, and north by Carey-street, and stretches from Bell-yard, Temple-bar, on the east to Clement's-lane (by St. Clement's Church) on the west: a noble area and finely placed, but sadly wanting in suitable approaches from the north and north-west.

Of our national monuments there is little to tell. Another year has passed and nothing more has been seen or heard of the costly monument of Wellington, which was to be erected in St. Paul's, and for which the House of Commons, many years ago, voted 20,000*l*. To be sure the accepted design is so monstrous a thing—monstrous in every sense of the word—that it would be a national gain if the 20,000*l*. were given to have it *not* set up. But a promise was made some years back that the execution of the work should not be proceeded with until a model of the actual size had been placed in the chapel appropriated to it, and an opportunity thus afforded of judging of its appearance. This has not been done, and the danger is that the work itself may be slowly proceeding. It is a great pity that some member of the Lower House does not press a question on the subject to a definite issue. The vague replies with which such questions are usually set aside are creditable neither to the answerer nor to the querist. The Nelson monument in like manner remains as it was. We hear, indeed, every now and then, a rumour of Sir Edwin Landseer having advanced a stage further with the lions, and of their many surprising qualities; but when they will make their appearance in public no one seems able to anticipate. Perhaps after all we ought not to complain of the delay. It took eight-and-thirty years to lift the statue of the hero to the summit of the column; can we wonder if it takes another five-and-twenty to drag the lions to its base? But what excuse can be found for leaving another national monument so long unfinished? Marochetti's Richard the Lion-Hearted, was placed on its pedestal some seven or eight years since, yet the sides of the pedestal still show the same rough vacant spaces as at first: surely the baron cannot be making a series of tentative experiments preparatory to commencing the rilievi?

The Albert Memorial in Hyde-park does not make any rapid visible progress; but we see that the solid frame-work is advancing, and we are assured that by the time it is completed, the marble shafts and capitals, the polished granite, and all the other costly materials, statuary, &c., which are to form the outward adornings, will be ready for insertion in their respective places. With this we may be content. A national monument should not be hurried, but it should go forward.

The Manchester Albert Memorial also advances slowly; but here it is for want of funds. About 3,000*l*. beyond the sum in hand will be required for finishing what is commenced; but, according to the architect's report, "double that amount might be advantageously spent

in more fully developing the ornamental details of the design." It is to be hoped that, after commencing the work with so much enthusiasm, and carrying it so far forward, the Manchester men will not render it (and themselves) ridiculous by ill-timed parsimony. At best it was not a very costly matter for a city like Manchester: to leave it now unfinished, or to finish it in a cheap and shabby manner, would be inexcusable. The Welsh Albert Memorial was inaugurated by Prince Arthur in August last. It stands on the bold headland on which Tenby Castle formerly stood, and consists of a statue, 8ft. 9 in. high, of the prince, habited as a field-marshal, placed on a lofty ornamental pedestal. The sculptor was Mr. J. Evan Thomas, a native of the principality, and his countrymen are very proud of his work—but "Mr. Thomas's sculpture of his country's most ancient symbol; the leek," on one of the panels of the pedestal, seems to divide their admiration with his sculpture of the man.

The record of monumental sculpture is unusually meagre. The equestrian statue of Viscount Combermere, by Baron Marochetti, has been erected at the principal entrance to Chester Castle. It is of bronze, 12 ft. high, and stands on a granite pedestal of the same height. Lord Combermere is in the uniform of a field-marshal; the likeness is considered good, and the attitude unaffected and characteristic. It is erected by the people of Cheshire. In the inner hall of the Houses of Parliament, the most fitting repository of such a memorial, was erected last summer a statue of the architect of the Houses, Sir Charles Barry. The statue, by Foley, is an excellent one, the likeness good; but it is hardly fitting that the cost of such a work, for such a place, should have been left to be borne by the architect's private friends. Two or three other statues (hardly more) have been erected during the year, but none calling for record.

Statues contemplated, or actually in hand, are little more numerous. The features of "the Apostle of Free Trade" will of course be perpetuated in bronze and marble; but, as far as we know, the only statue of Mr. Cobden actually commissioned, is one for Manchester. One has been talked of for London, but the site fixed on, that of the old toll-house at Camden Town, seems to indicate a local rather than metropolitan project. Another is proposed for Stockport; but the memorials proposed for Birmingham and the majority of other places, seem mostly to assume some more utilitarian form than that of a statue. A committee has been formed for the erection of a statue of James Watt at Birmingham. Mr. Foley is occupied on a statue of the late Lord Canning, to be placed near that of his illustrious father in Westminster Abbey. A memorial, mediæval in character, and 120 feet high, of the mighty hunter, Sir Tatton Sykes, is in course of erection at Driffield, Yorkshire, from the designs of Mr. John Gibb, of Oxford. Another, not wholly dissimilar, but more ornate, in character, by the same architect, is proposed to be erected at Stratford-on-Avon, if funds can be found. Such a memorial is hardly required. For his honoured bones, Shakespere needs not *this* "monument of piled stones." A Gothic cross and fountain is to be erected at Nottingham as a memorial to the late John Walter, M.P.

Hardly to be ranked as a public monument, but really a very elegant

work of art, is the Eleanor Cross in front of the Charing Cross terminus of the South-Eastern Railway. Now that the scaffolding is removed, the cross is seen to be a well-proportioned and graceful structure. In general character it resembles the existing Eleanor Crosses; but if we may trust the old engravings, is much richer than the original Charing Cross. The statues on it are excellent of their kind, and all the details are well worked out. It is so seldom that we get anything deserving commendation from a railway company, that the merit of this should receive the warmer recognition; nor should the skill and pains of Mr. Barry pass unnoticed.

2. Public and Sanitary Works.

During the year ending October, 1865, there were opened 425 additional miles of railway, making the entire length in operation in the United Kingdom just 13,000 miles, the receipts from which average very nearly three quarters of a million, *weekly*.

In a paper of this kind, we cannot pretend to follow the continuous expansion of so vast a system as this; but some account has been given in previous years of railway progress in the metropolitan district, and a similar brief notice may be looked for on the present occasion. The extension of the Metropolitan (or Underground) line to Finsbury, is nearly completed. The works have been heavy, but happily will not be a permanent disfigurement to the streets like the lines above ground. The portion uniting this line with the London, Chatham, and Dover, is also nearly finished; but a great deal yet remains to be done before the connection between the northern and southern railways is in working order. Between Farringdon-road and King's Cross, the line is being widened a good part of the way by the construction of a new tunnel alongside the old one, whilst at King's Cross itself a most complete arrangement of tunnels, old and new, is being carried out, and a short branch will be constructed to the Midland Company's proposed station in the Euston-road. The Eastern Extension, beyond Bishopsgate-street, is not to be proceeded with until the Metropolitan District Company are ready to commence their works. The present terminus of the Metropolitan Railway is to be superseded by a new and much more spacious one, in Charles-street, not far from that now in use. The new terminus will be a sort of double station, one portion serving for the Great Western, Great Northern and Midland railways, and the London, Chatham, and Dover Railway, and the other southern lines which it will bring in with it; whilst the other portion will be exclusively appropriated to the Metropolitan traffic. The Metropolitan and St. John's-wood line is making way along the Wellington and Finchley roads, and now that the company have obtained power to continue the line to Hampstead, the works will probably be prosecuted with more vigour. The other works sanctioned for completing the Inner Circle, and described last year, as yet move but slowly. The Metropolitan District Company have made a beginning at one or two points, but they refuse to commence the line which is to run along the Thames Embankment—and so, from the combined negli-

gence of Parliament in making provision for both works being carried on simultaneously, and the wilfulness of the railway directors, that great national work will be kept in an unfinished state for a year or two longer than is at all necessary.

The most important of the above-ground railway operations in and near London, is the Midland Extension. Of this the works are in progress almost the entire length from Bedford to London, and in many places they have presented a remarkable picture of active industry during the summer and autumn. In many parts the works are heavy, but they are proceeding with surprising rapidity. The terminus will be a large and important structure, fully rivalling its right and left-hand neighbours — the North-Western and Great Northern. It will extend for a distance of 340 feet along the Euston-road, from Old St. Pancras-road, immediately west of the Great Northern terminus, to Skinner-street, (opposite Judd-street). The station will be covered with an iron girder roof, in a single span of 240 feet, the widest yet constructed. On the west side of the station it is proposed to erect a great hotel; but the works for the terminus are not yet commenced. The company's goods station, at Agar Town, covers an immense area, and the sheds and warehouses are on a colossal scale. One warehouse is full 300 feet square, and covers, therefore, an area of over two acres. At the various sheds, warehouses, and stages, hydraulic machinery of the most powerful kind has been introduced for moving trucks, lifting goods, &c., and everything has been arranged with a view to economizing time, space, and labour. To form this station, nearly the whole of Agar Town has been swept away—a squalid neighbourhood, but the wretched inhabitants have found probably still more squalid homes.

The City Extension of the South-Eastern Railway is proceeding with as much speed as is practicable in a work of the kind and magnitude. The bridge across the Thames is well advanced. In general character, it resembles the Charing Cross Bridge. It has five spans, those at the abutments being each 135 feet, the three in the centre, each 167 feet wide; the headway (height from the water to the floor of the bridge) is 25 feet above Trinity high-water mark. The platform is borne on 16 huge iron piers, or cylinders, and brick abutments. The piers are placed four together—not grouped as in the Blackfriars-bridge, but behind each other, so as to offer as little obstruction as possible to the current. At present, the bridge can only be partially seen, but it does not promise to be very beautiful; it would have improved the appearance of the bridge, as well as helped greatly to relieve the over-crowded London Bridge pavements, had a clause been inserted in the company's Act, obliging them to carry out on either side a platform for foot-passengers. The Terminus, with its connected works, occupies a very large area. The whole of the Steelyard—so rich in memories connected with the early history of the City—is swallowed up by it, and the broad line of brick arches sweeps upwards to Cannon-street. There the grand front of the terminus will consist of a spacious hotel, similar in style and character to that at the Charing Cross Terminus. A novel feature here, however, will be a great dining saloon for "City men."

The North London and North-Western City Extension—from Kingsland to Liverpool-street, Finsbury, is ready for opening. The Terminus is not quite completed, but sufficiently so to show the design. It is a spacious Italian brick structure, with a central clock tower; the offices and platforms of the North-Western being on one side (the west), those of the North London on the other. The exterior is characteristic, and in some respects novel, and, as a whole, pleasing and appropriate; the interior light, spacious, and convenient. The Edgware, Highgate, and London, and the Tottenham and Hampstead Junction Railways, drag their slow lengths along at a rate which reminds one who only sees them at intervals of a month or two, of *Punch's* famous West Middlesex line; but the engineers report "that the works are proceeding at a satisfactory rate," and that "the lines will probably be open early next year." The Charing Cross, and North-Western Junction is not begun.

Of the railways south of the Thames, the Crystal Palace High-Level branch of the London, Chatham, and Dover has been opened, and here, again, the terminus displays some agreeable novelty. The short line for joining the London, Chatham, and Dover with the Metropolitan is completed, though the connection between the two lines is not yet made. To form a junction with the Great Northern, the London, Chatham, and Dover, has had to burrow under the underground Metropolitan—the roof of one tunnel being 15 feet below the floor of the other. It only remains to note further respecting this railway, that the bridge across Ludgate-street, has been permitted to remain for a whole year in its former unfinished and discreditable condition, but is now being proceeded with. The Kensington and Richmond branch of the London and South-Western has been staked out; but little progress has been made with the works.

The new lines connected with the metropolis, which were sanctioned during the last session, were fewer and of less consequence than for the past few years. One of the most noteworthy lines is the *East London*. The company has bought the Thames Tunnel a bargain, and proposes to utilize it. The Thames Tunnel cost half-a-million, the railway company is to pay 100,000*l.* for it in ten annual instalments. The object of the line, which is somewhat under nine miles long, is to connect the Great Eastern and North London with the southern lines of railway, and to afford ready communication between the inhabitants of the opposite sides of the river "below bridge." The East London Railway will have a city terminus in Liverpool-street, Finsbury, underneath the Great Eastern terminus, the level of the rails being here 16 feet below the street, whilst that of the Great Eastern is 18 feet above it. This portion of the line is subterranean, being carried along, but under, the line of the Great Eastern Extension, as far as the present terminus of that railway at Shoreditch. The East London line will then curve round to a central station on the north of the Whitechapel-road, where it will be joined by a branch leaving the New Tottenham and Enfield line of the Great Eastern at the Cambridge-road. From Whitechapel-road the main line will pass east of the London Hospital, and under the Commercial-road in a direct line south to the Thames Tunnel; to reach

which, it will burrow under the London Dock Company's East Dock. Emerging from the Tunnel on the south side of the Thames, it will pass through Rotherhithe by the Grand Junction Dock, and proceed still southwards to join by several slips the South-Eastern and southern system of railways generally in the neighbourhood of New Cross. A more venturesome line in its way than even that which will traverse the Thames Tunnel, is the *Waterloo and Whitehall*, which, starting from Scotland-yard, will cross the Thames in a line parallel with, but a little above Hungerford-bridge, by means of an immense tube sunk in the bed of the river, and be carried thence to a station in Vine-street, north of the Waterloo terminus of the South-Western Railway. Along this tube passengers and goods will be propelled by atmospheric pressure, a partial vacuum being formed in front, in the same way as letters and parcels are now conveyed along the tubes of the Pneumatic Despatch Company. The length of the line will be about five-eighths of a mile, and the tube will be large enough to admit the passage of a full-sized omnibus carriage.

The Great Northern has an Act for a *Direct line to Hertford*. It will quit the main line at the Hornsey station, and proceed by way of Winchmore Hill, to the west side of Enfield, and thence northwards by way of Clay Hill, &c., to Hertingfordbury, near Hertford, where it will join the company's existing Hatfield and Hertford line. The *North London, Highgate, and Alexandra Park Railway*, 4½ miles, will leave the North London line by the New Cattle Market (near which the North-Western also proposes to form some new works), and pass north-west through a corner of Camden Town, and east of the church in Camden-square; thence at the back of Kentish Town, and across the Junction-road where that crosses the York-road, and so northwards, passing under Highgate Hill and across the Archway-road a little west of Whittington's Almshouses, to the Edgware and Highgate line, which it will join at the foot of Mount Pleasant: it is possible, however, that the doubtful fortune of Alexandra Park may delay the construction of this line. Powers have also been obtained for widening the goods line from Bow to Poplar; and, apparently, in connection with this, an Act for making a new line, the *Blackwall and Isle of Dogs Extension*, (5¼ miles in length), from the Poplar goods station of the Blackwall Railway to the Isle of Dogs, crossing on the way the eastern entrance and the south and timber basins of the West India Docks. In the Isle of Dogs curved lines branch east and west, so as to serve the wants of that busy locality.

West of London, a new line, the *Acton and Brentford Railway*, will quit the main line of the Great Western at Acton, proceed in a curve south of Ealing, and thence to the Great Western and Brentford Junction Railway, which it will join about a mile west of Brentford. The *Hammersmith and Fulham*, 5 miles in length, will leave the Hammersmith and City line at Hammersmith, and run east of the Fulham-road, across Fulham Common and by Parson's Green, and thence behind Fulham to the Thames, where it is proposed to erect the new Wandsworth-bridge.

On the southern side of the Thames, there is to be a complex series of connecting links formed between the existing lines about

New Cross and Peckham; the South-Western has powers for a slip uniting the Twickenham and Kingston branch at Norbiton with the main line at Malden and Wimbledon; the London, Chatham, and Dover Acts for widening and adding to their existing lines, and to make a new branch, running from near Wandsworth station across the Thames to the Victoria station; but none of these require particularisation. By an Act obtained by the London and Brighton, and the London and South-Western Companies, the Wimbledon and Merton line is transferred to those companies jointly. This, by means of an arrangement come to by them with the London, Chatham, and Dover Company, will enable them to carry their traffic to the Blackfriars and Ludgate stations, and thus, by the Metropolitan line, put them eventually in direct communication with the northern, eastern, and western lines. The South-Eastern will participate in these facilities by separate arrangements with the South-Western, and London, Chatham, and Dover Companies. The *Surrey and Sussex Junction Railway* lies somewhat outside our limits, but it may be noticed as opening a new and more direct route to Tunbridge Wells and Hastings. It will leave the Brighton line about a mile south of Croydon, and proceed in a nearly direct course for about 22 miles, till it joins the East Grinstead, and Tunbridge Wells branch of the Brighton Railway at Groombridge, a short distance from Tunbridge Wells.

Although during the earlier stages of the Thames Embankment the works necessarily make little show, it is now evident to every one who passes along the Thames, or crosses one of the bridges, that a large amount of work has been accomplished. As the reader will remember, the works of the Northern Embankment were, in order to facilitate the operations, divided into three sections, which were to be let in separate contracts. Of these, only the first two have been proceeded with. No. 1 extends from Westminster-bridge to Waterloo-bridge; No. 2, from Waterloo-bridge to the eastern end of the Inner Temple Gardens. Before the permanent structure can be commenced, the water must be excluded, that navvies may dig and masons and bricklayers build. In section No. 1, the water is shut out by closely fitted caissons, in the manner described last year; in No. 2, by the more usual method of coffer dams; water-tight portions of from 100 feet to 200 feet being secured in each by means of return coffer-dams, as the works proceed. At best, this is a very tedious process; but sometimes it becomes wearisomely slow,—as may be supposed from the statement that, whereas it usually takes a week to sink a caisson, in one instance it took six months. However, as we said, fair progress has been made. Up to the present time, in No. 1 section, about 1,756 feet in length of caisson dams have been sunk, or are in process of sinking, and 1,415 feet in length of timber coffer-dam. The water is excluded throughout, and "structural works of concreting, brickwork, granite, and other masonry, are in various stages of progress within a length of about 1,074 feet of dam, and preparations are made for excavating within a further 470 feet of dam." A considerable length of low-level sewer, flushing sewers, and subway, has been completed. Perhaps the reader may be able to form some notion

of the extent of the operations, from the statement that, "already in this section, twenty millions of bricks have been laid and 30,000 cubic feet of granite built in, and that about 375,000 cubic yards of material have been filled in behind the embankment." On this portion of the embankment there will be five new steam-boat landing-places, averaging 250 feet each in length,—one at Westminster, which has been brought up to the level of the subway, one on each side of Hungerford-bridge, and one on each side of Waterloo-bridge. On No. 2 section the progress has hardly been so marked. Here there is still a portion of the works from which the tidal waters are not excluded; but the dams are advancing from each end, and soon the whole will be enclosed. Upwards of 250 feet of the river wall, sewer, and subway have been brought up to the required level of the roadway, and the construction of the Temple steam-boat pier is being rapidly pushed forward. By the terms of the contracts, section No. 1 is to be finished by August 10, 1866, under a penalty to the contractor of 5,200*l.* per week; and section 2, by the 19th of March, 1866, under a penalty of 2,290*l.* a week, so long as the contract remains unfulfilled. It is quite certain that the works will not be completed by those dates; but the contractors did not obtain possession of the ground till some time after the period specified, "and there were other causes of delay for which the contractors were not responsible;" the engineer, believes however, that the work will be completed within a few months of the time named.

We shall thus, if Mr. Bazalgette be not mistaken in his anticipations, have the finest public way in the metropolis completed by the end of 1866. But whilst the embankment itself will afford a noble roadway of a uniform width of 100 feet, this, we may remind the reader is not by any means all we shall have gained. The space reclaimed from the river is of a width varying from 430 feet at Hungerford to 300 feet at the Temple, and 200 feet at Waterloo-bridge. It is time we began to make provision for its suitable occupation. It would be a miserable anti-climax if we permitted it to be covered with mean business premises, or private dwellings. By the beauty of the situation, convenience of access, and quiet, it seems self-designated for a series of stately public buildings. One such, of primary importance in such a city as London, the Patent Museum and Library, has been for years waiting for a fitting locality; where else could so admirable a site be found? A Technological Museum, with its associated Library, has long been called for. Now, we have at least a site in all respects adapted for the purpose.

In speaking of the proposed National Museum, we have already suggested the superiority of the Thames Embankment over that most inconvenient locality. But the particular buildings, however important, are of secondary consequence. The first thing to establish is the principle, that from Westminster to Somerset House the reclaimed ground shall be appropriated to a series of edifices devoted to public use, and worthy alike in purpose and architecture of the site and the country.

The Southern Embankment is, in this respect, more fortunate than the Northern, that even before its commencement it has been decided

to build upon the space won from the river a building of a public character. It is impossible not to feel that such a structure as one of our noblest hospitals is worthy of the finest site that could be found. But as an architectural object, the proposed St. Thomas's Hospital hardly does justice to the position. The river front presents the appearance of seven detached town mansions, connected by a commonplace corridor. Surely some use could be found for a leading central feature that would impart something of unity and dignity to the whole. Chapel and lecture-theatre, library, board-rooms, &c., must be required, and where else could they be so well brought together? This Southern Embankment, we should mention, has been commenced, and preparations are making to begin the hospital as soon as the ground is ready.

The Main Drainage Works on both sides of the Thames are now completed, except the Low-Level Sewer on the north side of the river, which is being formed in connection with the Thames Embankment and the new street to the Mansion House, and which Mr. Bazalgette some six or seven months back reported, "would probably, therefore, not come into operation for a couple of years" from that time. It will be well if it comes into operation in a couple of years from the present time. But it is a great thing to have accomplished so much and so well. By general consent the works are executed throughout in a thoroughly workmanlike manner, and they effect at least all that was expected of them.

The works have been so fully described in former years that it would be superfluous to enter into any further account of them. It will be enough to point out generally that whereas the previous drainage of London was effected by a great number of main lines of sewers all discharging into the Thames, the Main Drainage system of the Metropolitan Board of Works was based on the principle of intercepting this drainage by new lines of sewers carried at right angles to the existing sewers, and a little below their levels, and by these new sewers conveying the entire sewage of the metropolis, and as much as practicable of the rainfall, to a distance of fourteen miles below London-bridge. To effect this, there were to be on the Northern side of the river a High-Level, a Mid-Level, and a Low-Level sewer; on the South side a High and a Low-Level sewer. "As large a proportion of the sewage as practicable is thus carried away by gravitation, and for the remainder a constant discharge is effected by pumping. At the outlets (Barking Creek on the north, and Crossness, near Plumstead, on the south) the sewage is delivered into reservoirs on the banks of the Thames, placed at such a level as will enable them to discharge into the river at or about the time of high-water. By this arrangement the sewage is not only at once diluted by the large volume of water at high tide, but it is also carried by the ebb to a point 26 miles below London-bridge, and its return by the following flood-tide within the metropolitan area effectually prevented." In the paper from which this passage is quoted (read before the Institution of Civil Engineers, March, 1865), Mr. Bazalgette states, "that there are about 1,300 miles of ordinary sewers in London, and 82 miles of Main Intercepting Sewers." The sewage on the north side of the Thames

at present amounts to 10 million cubic feet per day, and on the south side to 4 million cubic feet per day; but "provision is made in the Main Drainage System for an anticipated increase up to 11½ and 5¾ million cubic feet per day respectively, in addition to a rainfall of 28½ and 17¼ million cubic feet per day respectively, or a total of 63 million cubic feet per day."

To have been able to divert this enormous quantity of sewage from the river—at least from the metropolitan portion of it—is indeed a subject for congratulation, even though the cost be, as Mr. Bazalgette tells us, no less than 4,100,000*l*. We have not indeed wholly got rid of the nuisance yet: the proportion to be drained by the unfinished Northern Low-Level Sewer being estimated at one-seventh of the whole. But the improvement in the condition of the river this summer, a season well fitted to test it, has been palpable to every one who made a steamboat journey along it. The fish have already discovered the change. A fine jack has been caught off the Custom House, and roach opposite the Houses of Parliament. Who knows but that, when the Low-Level Sewer is completed, we might see, as our grandfathers used, boys angling from the sterlings of London and Westminster bridges, if the new bridges had any sterlings to angle from; or even a return to the halcyon days of "the pious middle ages," when creels used to be filled with smelts off Billingsgate, instead of, as in these degenerate days, within it!

As yet, however, we have not reached this consummation. Indeed, new dangers appear to threaten the purity of our river. The towns on the higher part of the stream are following the example of London in improving their drainage; but, unhappily, they are diverting their sewage into the Thames, instead of from it. A striking example has occurred since our last publication in the case of Kingston, where the town has been thoroughly drained, and the whole turned bodily into the Thames. The Conservators of the river very properly endeavoured to arrest the pollution, by applying to the Court of Chancery for an injunction, before the works were finished. But the vice-chancellor, who heard the cause, in giving judgment, asked, "Was he to stop the works of the defendants on a mere case of *prospective apprehended nuisance*?" and refused the injunction; adding, however, "without prejudice to any future proceedings on the part of the attorney-general, in case the works should occasion a nuisance." This is about as pretty an exemplification as could be imagined of the refined quibbling in which equity judges delight, and from which equity suitors suffer. Over and over again it has been decided in the law courts that a nuisance has been created by turning town-drainage into a river. By medical and sanitary authorities the point has long been assumed, as beyond dispute, as a basis for their inquiries. At this day, therefore, to term the influx of the sewage from a large and rapidly-increasing town like Kingston "a mere case of prospective apprehended nuisance," and to direct that the works should be completed, and the filth poured into the stream, in order to see whether a nuisance would be created, would seem to be a course that could hardly have entered into any other mind than that of a vice-chancellor: least of all, directly after an expenditure of four millions had been

incurred under parliamentary sanction, for the express purpose of diverting town sewage from the river. The case was made worse by the fact, that a very large portion of the water-supply of London houses is taken from the Thames at Kingston, the water companies drawing their supplies from the Thames having been compelled by an Act of Parliament to remove their works as high as Kingston, in order to be clear of the sewage pollutions from which they had suffered nearer the metropolis. But this also the vice-chancellor refused to take into consideration. It was for the water companies to see to that. If it were true that, as a consequence of these works, instead of wholesome water "sewage would be pumped up for the water-supply of the metropolis, the results would be absolutely ruinous"—to the health, and dangerous to the life of the consumers? No doubt, if half what sanitary authorities say of the effects of drinking water so contaminated be true, that will be the consequence of pumping up the Kingston sewage, however diluted; but that is not what the vice-chancellor says. The results, he says, "would be absolutely ruinous to the water companies." And, therefore, if mixing the Kingston drainage with the Thames is found to injure the quality of the water pumped up by the water companies, so much as to affect their business, they will have good ground for an application to the court. This, however, is just the thing which the water companies would, as long as possible, scrupulously avoid. The subject of the quality of the water they supply is one they by no means desire to see mooted. It might lead to an agitation they would be unable to resist, for securing a supply of water from a purer source; and, having expended an enormous sum on their present works, they do not wish to be compelled to remove them, or to see themselves superseded by a more fortunate rival.

Kingston is only one instance. Nearly all the towns and larger villages on the Thames above London—and these places contain a very large aggregate population—are draining, or preparing to drain, their sewage into the river; and where but a few years back it flowed between its sylvan banks a pure pellucid stream, grateful to every sense, it is now little better than a reeking sewer.

But the Thames is not alone in its deterioration. As drainage is improved, and manufacturing processes modified, all our rivers are becoming more or less seriously polluted, and in some of our manufacturing towns to an extent sickening to behold, or even to read of. The matter has been discussed in the House, in Committee, and in all shapes "out of doors." No practical result has yet been arrived at. But, perhaps, the best foundation for one has been laid in the appointment of a Royal Commission, at the head of which is Mr. Rawlinson, our most distinguished drainage and sanitary engineer, to inquire into the whole subject of the pollution of rivers, whether by sewage, mines, or manufactures, taking for their range of investigation the valley of the Thames, the Mersey valley, and other "selected river basins," and report on the best means of remedying the general and local evils. There can be little doubt that this subject of the pollution of our rivers, as an important branch of the great question of the public health, is one that must early engage the

serious consideration of the legislature; and it is hardly conceivable that the issue can be any other than the total exclusion—as far as that can be effected by legislative enactments—of town sewage from all rivers and watercourses. What to do with the sewage is the next problem to solve, and it is one of serious difficulty. Meanwhile, an experiment for the profitable disposal of town sewage seems likely to be tried on a large scale. Last session a special Act was passed, empowering the formation of a company, having for its object the utilization of the sewage of the northern side of London, under a concession granted to Messrs. Napier and Hope by the Metropolitan Board of Works. The company has since been formed, under the title of the Metropolis Sewage and Essex Reclamation Company, with a share capital of 2,100,000*l*. Besides the right to the sewage, the company will have the privilege of reclaiming about 7,000 acres of sandy foreshore on the Essex coast, between Shoeburyness and the mouth of the Blackwater. The sewage is to be taken from the reservoir at Barking Point, and conveyed to the Maplin Sands in pipes, to be there employed in irrigating the reclaimed land; but the pipes may be tapped on the way, if farmers wish to purchase a supply of the fertilizing mixture. The works are estimated to cost 2,400,000*l*., and contracts have been entered into for their execution. The company have the concession of the sewage for fifty-four years, on the terms of taking the whole of the profits for the first four years, and for the remaining fifty years dividing the profits equally with the Metropolitan Board of Works, "with a priority of payment to the shareholders to the extent of five per cent." The sewage of the southern side has not been assigned, but several parties are anxious to obtain the appropriation.

We have recorded the earlier operations under the Lancashire Public Works Act. They have been continued with equal advantage to the operatives employed, and to the places where the Act has been adopted. The Executive Committee of the Central Relief Fund at their final meeting gave emphatic expression to their "conviction that the advantages derived from the Public Works Act cannot be measured by the amount of employment provided, but that its indirect influence on the discipline of labour, or as a stimulus to the profitable application of capital, has exceeded the more direct, and therefore more apparent, benefits derived from it." The whole of the sum (1,850,000*l*.) allowed by the Act to be advanced on loan has been taken by about ninety places. The larger part of the expenditure has been on drainage and street improvements. In his last Report to the Executive Committee of the Relief Fund, Mr. Rawlinson, who has had throughout the supervision of the operations, stated that during the two years that "public works have been in operation in the distressed cotton districts, about one million sterling has been expended upon useful employments, at an average rate of some 10,000*l*. weekly." Whilst the distress was most severe, some 35,000 people received relief, directly and indirectly. And the benefits have not been limited to the direct action of the measure, "a considerable amount of money having been expended in connection with public works, but derived from private sources. . . . There

have been many forms of labour other than sewering and street-forming, such as land-draining, which some noblemen and gentlemen have undertaken. Highways and roads have been improved by boards of guardians; owners of estates adjoining having, as a rule, given the land required." Under the Act above 200 miles of street have been wholly made, sewered, paved, &c., and above 300 greatly improved; reservoirs have been constructed for the storage of 1,500 million gallons of water, equal to about three days' flow of the Thames at Richmond in dry weather; and other extensive sanitary works executed. The works were so subdivided that men could be employed in small gangs mixed with skilled workmen, and properly directed and superintended. In this way, out of 6,700 labourers employed on the works at the end of 1864, 4,000 were distressed cotton operatives; and 2,000 more found employment indirectly in getting stones and other materials. Even among the 2,700 labourers described as "skilled," Mr. Rawlinson remarks that "many were originally factory operatives, who had passed from the unskilled to the skilled list." The men liked their work, performed it in a satisfactory manner, and were able to earn on an average from 14*s.* to 16*s.* a week. Now they are finding more remunerative occupation at the mills; but many greatly prefer the hard out-door labour, and have gone to similar work elsewhere.

Perhaps, however, the working of the Act, as regards those public improvements with which we are here more immediately concerned, is better seen in a particular instance than in these general statements. Let us take the latest of the local reports we have seen,—that of the surveyor of the borough of Blackburn, for the year ending June 30, 1865. It will show not only what has been done, but in what condition some of these towns were—for Blackburn stood by no means alone—at the commencement of the cotton distress. "Before the adoption of the 'Public Works Act,' whole districts, very populous, and increasing very fast, were without a single paved street in them, or that they could be approached by." It was almost impossible to reach many of the large mills with a horse and cart; the operatives had to get to them "through mud and water," and accidents were constantly occurring. It was decided, therefore, to commence operations, by making at least one good paved thoroughfare through each district; to connect the whole together, and then to complete the streets leading to the mills and manufactories. This has been accomplished, or nearly so, and in some instances the improved ways have shortened the distance half a mile between one district and another. "The seven miles of streets that have been paved under this Act were previously covered with stagnant pools of water and filth, and used by the occupants, in many cases, as common cesspools." The main drainage of the town has been completed, or nearly so, and works efficiently; and more than a fourth of the houses have been drained and connected with the sewers. In all, about 21 miles of brick and pipe sewers have been constructed within the borough, under the Act, during the past two years; storm overflows have been formed where practicable, and "the important subject of providing outfall works is under the consideration of the

Highway and General Drainage Committee." The public park has been improved, most of the actual work having been performed by unskilled labourers. Of the 80,000*l.* borrowed under the Act, 72,000*l.* have been expended, nearly 33,000*l.* being for day-wages. Looking at what the town was, and at what has been accomplished, we cannot but feel with the writer of the report, that, besides the important service the works have rendered, in furnishing employment during so grave a crisis, "the improvement, in a sanitary point of view, is gratifying, and must ultimately show itself in a reduced rate of mortality."

The demolition of houses for new lines of railway and public improvements, and the displacement of the labouring population about London, have continued with little abatement. Lord Shaftesbury stated in the House of Lords that during the year 20,000 persons had being displaced by railways; and we still hear of houses being removed by the hundred, as about Ray-street, Clerkenwell, for widening the Metropolitan Line, and of whole courts of hovels being unroofed, as at Finsbury, for the North London and Great Eastern works, on account of the wretched occupants refusing to remove from them. The difficulty, long excessive, of finding suitable dwellings for the very poor, has become greatly increased; rents, even of the most miserable rooms, have risen greatly; and, as an inevitable result, there is in many localities the most unhealthy and degrading overcrowding, with its unfailing attendants, vice, intemperance, and fever. To provide better dwellings, at all in proportion to the requirements arising from this great destruction of the poorer classes of houses, the natural increase of population, and the constant influx of new labourers attracted by the extensive works in progress, appears to be beyond the hope of the most enthusiastic advocate of "improved dwellings for the industrial classes." Nor is the want likely to be met on the ordinary principle of demand and supply; for the sufficient reason, that houses of the kind required are less profitable to the builder than any other.

But, though the evil cannot be adequately remedied, ardent efforts are being made to alleviate it; and it may be expected that important results will flow from the help promised by the Government. The Lords of the Treasury have undertaken to introduce early next session a bill to enable the Public Works Loan Commissioners to advance money on mortgage at 3½ per cent. interest, in aid of approved projects for providing better dwellings for the working classes.

The City Corporation have this year taken the lead in this benevolent enterprise. The Corporation Buildings, Farringdon-road, provide accommodation for 160 families, each in a distinct tenement. They are five stories high, and in general appearance resemble the buildings erected in Paul-street, Finsbury, by Alderman Waterlow—to whom also is due the credit of having induced the Corporation to build them. The ground floor in Farringdon-road is divided into shops. Above, the centre sections are set back so as to afford space for a balcony on each floor, from which access is given to the several suites of rooms. The balconies are reached by a fire-proof staircase

which is continued up to the roof. The tenements are let at from 4*s.* 6*d.* to 7*s.* 6*d.* a week. The highest are on the first and second floors, and comprise a living room, two bed-rooms, and well-fitted kitchen, scullery, &c. An intermediate class supplies a sleeping-room, a living-room, fitted with kitchen range, oven and boiler, and a scullery, whilst for the lowest rent the tenant has a sleeping and living-room combined, and a washhouse. Every tenement is provided with its own water-cistern, closet, dust-shoot, and other conveniences: and all are carefully ventilated. The roofs serve as drying and recreation grounds. The buildings were designed by Mr. Horace Jones, the City architect. All the tenements have been occupied as soon as ready; but however valuable for a class greatly needing such dwellings, they are evidently above the means of the very poor.

The Trustees of Mr. Peabody's munificent gift of 150,000*l.* "for the benefit of the honest and industrious poor of the Metropolis," have completed the block of buildings in the Lower-road (now, by grace of the Metropolitan Board of Works, Essex-road), Islington; and have commenced three others, in Love-lane, Shadwell, and Commercial-street, Shoreditch. Of these buildings, Mr. Darbishire is the architect. They also are five stories high, have shops in the ground-floor, and have a sort of family likeness to those just noticed; but are the best looking of the family. Every provision is made for the health and comfort of the occupants. The tenements are of one, two, or three rooms, the rents ranging from 2*s.* to 5*s.* a week. Each block will accommodate 60 tenants. The Company, originated by Alderman Waterlow, have proceeded vigorously with their undertakings. "The Tower Buildings," Brewhouse-lane, Wapping, are completed, and occupied by 60 families. The "Cobden Buildings," King's Cross-road, are also finished and occupied; as are likewise two out of the five blocks, which form the "Stanley Buildings," Old St. Pancras-road. Other blocks have been erected by different parties at Southwark and at Westminster.

Dwellings of a somewhat different class, "Model dwellings," in every sense, have been erected by Miss A. Burdett Coutts, in Swain's-lane, near the grounds of her residence, Holly Lodge, Highgate. Holly Village, as an inscription over the entrance gate informs you it is named, consists of nine detached buildings, set informally about a spacious quadrangle. Some of them are single houses, some comprise two dwellings. They are built of yellow brick, some with white or moulded brick, some with stone dressings. They are Domestic English in character, with gables and bargeboards. Although bearing a general resemblance, and in one or two instances arranged as corresponding pairs, they all differ more or less in form and considerably in the details. Some have very pretty turrets; some recessed balconies. All of them have a quiet elegance that is very uncommon in buildings of their class; and they are built throughout with a care and finish seldom bestowed on buildings of a much more pretentious order. In the design there is occasionally a quaintness that is quite refreshing; and the rooms, though small, are convenient and cheerful. The entrance is rather elaborate, with two carved statues of females

holding a lamb and a dove, and there is some pretty carving elsewhere. The quadrangle will be grass plat and garden, and the whole is enclosed with a rustic fence. The architect is Mr. Darbishire; but Miss Coutts has herself watched their progress, during which many alterations have been made.

Our London Parks are being quietly but systematically rendered more ornamental, generally with excellent effect, though with some little loss to the breadth of green sward. But the flower-gardens are so well laid out and admirably kept, and so brilliant during the summer with choice and well-chosen flowers and handsome foliage, that one cannot but feel that the change is a real improvement. In the Regent's Park the Avenue Gardens, covering an area of four acres, at the south end of the Broad Walk, and eventually to extend over six acres, afford the teeming population a garden always open to them, that would be considered a worthy appendix to a ducal park. Rather a quaint, but not unpicturesque red brick building, half lodge, half shelter from storm or mid-day sun, has been erected close by: both lodge and garden the handiwork of Mr. W. E. Nesfield, under whose superintendence, we believe, most of the recent garden work in the parks has been formed. In Hyde Park, the promenade along the east side of the park from Apsley House to the Marble Arch, has been completed, and here the flower-beds form a sight well worth visiting. The plantation of beds and flowers from the gates by Apsley House, are being continued down to the Serpentine. Plantations of ornamental trees have been extended along the south side from Prince's-gate to Queen's-gate; by which last extension pleasure-grounds have been laid out, and tastefully planted with shrubs and flowers. Finally, horse rides have been made to extend from Victoria-gate to the Magazine Barracks. A new horse ride has also been made in the Green Park, from Buckingham Palace to Stable-yard gate, and one in St. James's Park, alongside Birdcage-walk. A "Sub-Tropical Garden," nearly four acres in extent, in which plants hitherto confined to green-houses, flourish luxuriantly in the open air during the summer, has been formed at Battersea Park, and other marked improvements made—but it still of necessity lacks the pleasant shade afforded by the trees in the older parks. A few summer-houses, or shady resting-places, would add greatly to the comfort of visitors. Of the proposed new parks, that at Rotherhithe, the Southwark Park, approaches completion; and a beginning, we believe, has been made with the long-talked-of Finsbury Park.

Among the good results of the Lancashire Public Works Act, have been the improvement of some of the existing parks and public gardens, and the formation of new ones. Perhaps the most important this year is that at Oldham, of about 60 acres, completed at a cost of 31,000*l*. Others have been opened at Bingley, and elsewhere.

3. Churches and Chapels.

Church building and church restoration proceed with unabated vigour. Judging from the published reports, the number of new churches consecrated during the past year must have been larger than

ever, and the announcements of "laying the first stone" of new churches are more numerous than the reports of consecrations. All we can do amidst the multitude is to notice, with some particularity, a few of the more characteristic or prominent examples, and to deal with others in the mass.

Our churches continue to be exclusively Gothic, but by no means exclusively English Gothic. Nor, when English, are they always in the manner of a single period. It might seem that we were approximating towards that mongrel and sterile thing, an Eclectic style, were not the specimens before us of such widely different genera—chance products, evidently, rather than the result of deliberate design. Some are of avowedly foreign origin—"Continental Gothic," whatever that may mean, "French Gothic," "French Flamboyant," "Lombardic," and even "Byzantine"—and this is found more commonly in the announcements of buildings recently commenced than of those recently finished. Yet it would be a mistake to conclude that there is an increasing tendency to lean on foreign help. In some cases the practice is the result of genuine admiration. In more, merely the influence of fashion over feeble and imitative minds; or the desire to swim with the tide. With some popular and overtasked architects, it may be a half-unconscious effort to insure novelty by the most obvious and easy means, common to all manufacturers, of saving time and thought, and supplying the place of invention. Where, however, foreign types are resorted to by the artist-architect, an attempt at least is made to assimilate what is taken. We have thus a more or less intimate coalescence, but the result is at best a hybrid. The deficiency, so far as we recognise a deficiency, is that of a thorough fusion in the mind, and the production of a consistent whole.

What is of better promise, there is a more distinct recognition by our architectural leaders of the primary truth that it is not enough that a church be a faithful reproduction of a mediæval edifice, but that in form, character, and decoration—constructively and as a work of art—it should be designed for the time, the service, and the place for which it is intended. Hence, instead of having, as we have been so long accustomed to have, a new church built like a miniature cathedral, though placed in a little rural village, or, what is more common, after the exact type of a mediæval village church, though it is set down in the midst of this teeming nineteenth-century metropolis, or the squalid purlieus of a seaport or factory town, we have town churches evidently designed for large town congregations who are to be brought under the eye, and reached by the voice, and acted on in masses: suburban churches with some consideration of the special class who will fill them; and village churches whose towers and spires seem not more in harmony with the hills and trees that environ them, than the quiet, unobtrusive beauty of their interiors with the solemn worship and simple worshippers.

The most noteworthy of the London churches completed in the past year, is that of St. Michael and All Angels, Paul-street, Finsbury. It stands opposite Alderman Waterlow's Model Dwellings, and in the heart of a poverty-haunted neighbourhood. The building is of yellow

brick; the style a mingling of First and Second Pointed. The exterior is peculiar rather than imposing, the desire evidently being, as is becoming usual in town churches, to concentrate the attention on the inside. The interior has not attained solemnity; is deficient in richness; but has been carefully adapted to a special object. As you stand at the west end of the church, its great width and height, combined with sufficient length, impart to it an air of dignity, whilst, if it be service time, the deep chancel, narrower than the nave and raised several steps, gives importance to the skilfully arranged grouping of priests and choristers, banners and crosses, millinery and flowers, and saves even the processions from appearing mean. Accepting it as a church designed for an "æsthetic service," with but limited means for carrying it out, the interior is certainly a success. The bare brick walls look cheerless, and will look still more so as winter creeps on, but the architect designed them to be in good part covered with paintings and other decorations. And apart from its æsthetic character, the interior forms a good auditory; the nave columns scarcely intercept the sight, and the acoustic principles seem good—you hear preacher and reader well from very different parts of the church, and the tones of the organ produce no awkward reverberations. The internal dimensions are—nave 97 ft. 6 in. by 26 ft. 9 in., with aisles each 10 ft. 6 in. wide; chancel 38 ft. by 24; height of nave 75 ft. to the ridge of the open timber roof. It will accommodate nearly 1,000 persons. There is no gallery. The site cost 4,700*l.*, of which one gentleman contributed 3,000*l.*; the building cost 7,500*l.*, towards which another (or the same) anonymous donor gave 6,000*l.* The architect was Mr. James Brook.

St. Clements', York-place, Barnsbury (really in the rear of Pentonville prison), is a spacious brick church, designed by G. G. Scott, R.A., and built at the expense of George Cubitt, M.P. It is therefore a work of superior art, and unexceptionable construction. But even it does not solve the problem, how to erect a town church, spacious, solemn, and adapted to the ordinary service of the English Church. Standing in a street of mean houses, only the west front is seen, but that has a rather striking appearance. It is very lofty—has a good doorway, over which are lancet windows, and above these a well-carved seated statue of the patron saint within a pointed oval niche, whilst the gable is crowned by a stepped open bell-cote, having two large bells in the lower and a smaller one in the upper stage. The division of the nave and aisles is marked by stout buttresses. As a whole, the west front is suggestive of French reminiscences, but it has distinct character. The interior is somewhat disappointing. It is light, spacious, and lofty; certainly handsome, but hardly impressive. The nave, of six bays, is divided from the aisles by cylindrical stone columns of moderate thickness, which support tall brick arches and a clerestory having triplet lancet windows over each arch. The chancel, wide and of moderate depth, has three lancet windows, separated by good clustered columns, and over them is a pointed oval light, filled, like the windows below, with painted glass. The chancel arch, of noble dimensions, is flanked with slender shafts. The roof is an open timber one of high pitch. The capitals and mouldings

throughout are of good and unobtrusive design. Altogether it is a handsome interior, but, as we have said, not wholly satisfactory. The walls, like those of the exterior, are of plain yellow brick, and, although we are conscious it is an ecclesiological heresy, we must confess to thinking that they impart a dull, cheerless, unfinished aspect to the place. And it is far from perfect as an auditory. It looks cold and is cold; and the voice of the reader is dissipated in the void above. So at least it seemed and felt to us. But our experience may have been exceptional, or the occasion unfortunate. Sitting in the nave, some three or four benches from the door, on one of the damp cold Sunday mornings of which there have been so many this autumn, we should have been unable to follow the reading of the Lessons from the central lectern had not the chapters been familiar, and were quite unable to catch half-a-dozen consecutive sentences of the sermon; whilst the wind streamed in with unmitigated bitterness from the door, which opens directly from the street: and thus we were left to contemplate the unequal patches of damp stain on the walls, and to moralize on possible rheumatism and the martyrdom we were called to undergo as a consequence of endeavouring to furnish a faithful report on a model town church, observed under the circumstances for which it was built. The church accommodates (or affords free seats to) 800 persons, and cost nearly 8,000*l.*

Among other London churches is one still farther east, St. Andrew's, Canal-road, Kingsland-road; a brick building of divers colours, with its side to the street, entered by a recessed porch at the west end, and having a square tower and zinc spire at the east—rather eccentric than elegant in design, but, if not elegant, commodious within. It was designed by Mr. C. A. Long for a congregation of 890, and cost 3,200*l.* At the extreme west, Christ Church, Down-street, Piccadilly, is a stone building, of a much more ambitious and highly decorated order, as befits Mayfair. It was designed by Messrs. Francis in the "flowing Middle Pointed French Gothic style," but as, though opened, only the eastern half of it is built (it is intended for 900 persons, but at present seats only 420) it would be premature to notice it more fully. St. John the Evangelist, Peckham, a fair First Pointed building, designed by Mr. Baily, has 900 seats, of which 300 are free. All Saints, Surrey-square, Old Kent-road, is built of Kentish rag, with Bath stone dressings; Second Pointed in style; was designed by Messrs. Parris and Field; accommodates 800, and has cost 4,500*l.*, but the tower and spire are unfinished. St. Michael's and All Angels, South Hackney, is a large and handsome church of the ordinary type, First Pointed in style. It was built to accommodate 1,200 persons, at a cost of 4,000*l.*, from the designs of Mr. E. C. Hakewell. St. Michael and All Angels, St. Leonards-road, Bromley, near the East India Docks, is of ornamental brick-work with stone dressings, both externally and in the interior; First Pointed in style, and, by means of galleries, affords 1,300 sittings, all free and unappropriated. It was designed by Mr. J. W. Morris. Had we space, one or two of these churches would claim a few words of comment, but as it is they must pass with this mere enumeration.

We may, however, point attention to one London church, though

still unfinished, as somewhat exceptional in character. St. Martin's, Gospel Oak-fields, is a carefully finished specimen of that now rare style, the Third Pointed, or Perpendicular. It is built of hammered rag, with Bath stone dressings, and consists of nave and aisles, semi-hexagonal chancel, short north transept and tower. The tower stands at the north-west, detached from the body of the church, except by a wall at the base. This tower is a noticeable feature in the exterior. It is square, lofty, has rather large windows, and an angle turret crowned by a tall spirelet, shorter pinnacles capping the other angles: a form not infrequent in towers of this style, but of which we remember no other example about London. There are also two capped turrets at the junction of the nave and chancel. The windows vary considerably in size and character, and the wall surface is a good deal broken. The carving is unobtrusive, but well executed. Altogether the exterior forms a marked contrast to most recent churches, and the strongest opponent of "the base Perpendicular" must admit its attractiveness. The interior is equally striking. It is of considerable width, but has only two nave columns on each side. The large windows, with their florid tracery, are here very effective. But one of the most striking features is the roof, an elaborate one on the hammer-beam principle, of dark varnished timber, rich in effect, but reminding one too decidedly of the roof of a baronial hall. At present the church is a good deal cumbered with scaffolding, and it is hardly possible to decide on its merits; but it possesses both architectural and personal individuality, and, when finished, will be worth the trouble of a visit. With the parsonage—a very plain and uninviting house—it is estimated to cost 13,000*l.*, defrayed by Mr. J. D. Allcroft. The architect is Mr. E. B. Lamb.

We have called this a London church, but it is hardly yet in London. Gospel Oak-fields—probably few of our readers have ever heard of the locality—lies between Kentish Town and Haverstock Hill, and is a good illustration of recent building progress. A very few years ago it was literally fields. Houses, chiefly of a small and inferior class, were built, and one after another streets, dirty, ill-drained, and unpaved, were formed. In 1862 a large Birkbeck School was erected (see 'Companion to the Almanac' for 1863), and was the only building of a public character here. Now the whole place is built over. The Midland Railway has cut through the district and taken the Birkbeck School, but a new and still more spacious one has just been completed close to St. Martin's church. Hardly more than a hundred yards off, the ground is laid out for another church, St. Andrew's, towards the erection of which "an anonymous donor" has given 4,500*l.* Very near to this a Congregational chapel, of some architectural character, was opened in November, 1865; and within sight of this again a large Roman Catholic convent is in course of erection.

Of suburban churches, St. Stephen's, Lewisham, is by Mr. G. G. Scott. It is a good example of his favourite manner, but has no other speciality. In style it is First Pointed, modified by a French colouring, and has cost 12,000*l.*, borne by the Rev. S. R. Davies. Another, and, though less costly, perhaps more noticeable church, by Mr.

Scott, is St. Andrew's, Hillingdon, near Uxbridge. It is of yellow brick, with red brick in patterns, and consists of nave, aisles, and chancel; and, attached to the south side of the chancel, a tower with lofty shingle spire. The unusual position and size of the steeple render it a conspicuous feature, but it rather dwarfs the building. The church has 666 seats, of which half are free, and cost 7,700*l.*

At *Bickley*, near Bromley, Kent, a church, St. George's, has been built, which looks well close at hand—we have only seen the exterior—and forms a conspicuous object for miles around. It is cruciform, with an apsidal chancel, tower and tall spire; has 900 sittings, of which half are free, and cost 10,000*l.* The architect was Mr. Barnes. The following are some of the other suburban churches:—St. Paul, Maryland-road, *Stratford*; a rather fanciful structure of various coloured bricks; nave, with aisles and chancel, 139 ft. by 60 ft.; tower to be added when funds are raised; 1,100 sittings; cost 4,000*l.*; architect Mr. E. B. Keeling. All Souls, *Kilburn*, is of brick, with coloured bands and arches, and consists of a nave and north aisle, and an apsidal chancel. It has 600 seats, and was built by the Rev. H. R. Wadmore, at a cost of about 3,900*l.*; architects Messrs. Wadmore and Baker. St. Michael's, Wood Green, *Tottenham*, occupies the site of an older church, of which the chancel is for the present retained. It has nearly 600 sittings, and cost about 2,500*l.*, the old materials having been used, and the tower left to be carried higher, and a spire added at a future day. The architect was Mr. H. Curzon.

Turning to country churches, we have, in All Saints, Clifton, an attempt by Mr. G. E. Street to produce an interior adapted to the requirements of a populous town; one in which, when the church is most crowded, the entire congregation shall be within sight and hearing of pulpit, desk, and altar, and yet the religious character of the edifice be retained. This he has done, not, as is frequent now, by reducing the dimensions of the nave columns, for his are of unusual thickness, but by giving great width to the nave and making the aisles little more than an ambulatory, by which, as the church fills, access may be obtained to all parts of the nave. It is part of his plan that there shall be no pews or benches, only chairs, the arrangement of the congregation depending, therefore, very much on the more or less crowded state of the church. The building is throughout of stone, very massive in character, and consists of a nave 111 ft. by 44 ft., and 62 ft. high, with lofty clerestory, waggon roof, and narrow aisles; chancel 44 ft. by 24, and 46 ft. high; sacristies for clergy and choir; and a tower on the south-east, which is to be surmounted with a lofty spire. Ultimately the interior is intended to be richly decorated, but it is proposed to proceed slowly, but thoroughly, rather than hasten to an imperfect conclusion. The church is intended for a special phase of the established ritual, and for that is very effective.

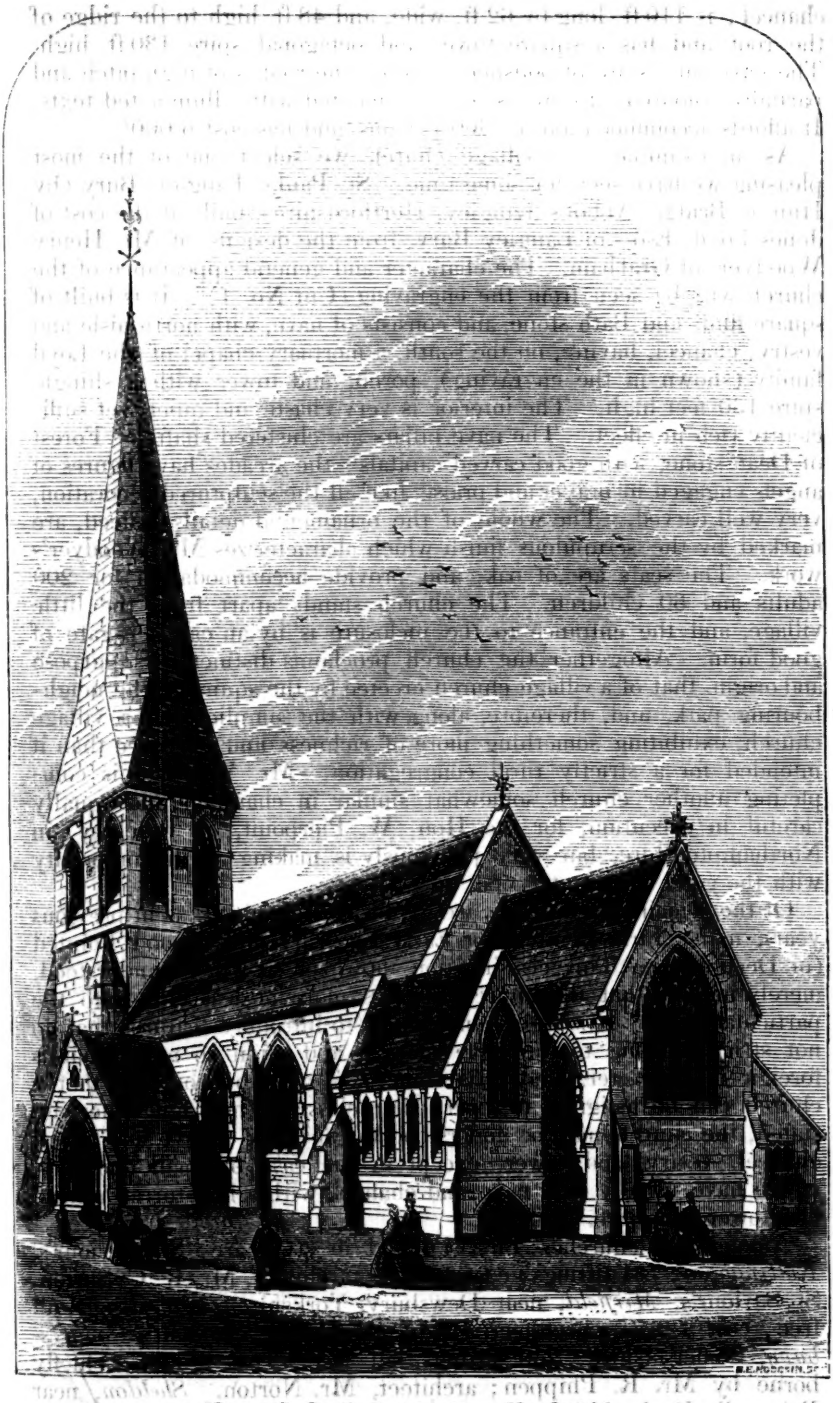
A very different variety of church for a country town is that of St. Stephen's, Carlisle, erected at the expense of Miss Burdett Coutts, and designed by Mr. James Nelson, of Carlisle. In style it is Second Pointed; the materials are local red sandstone with quoins, dressings, and tracery of white Prudham stone. It has nave, aisles, and apsidal

chancel; is 110 ft. long by 62 ft. wide, and 48 ft. high to the ridge of the roof, and has a square tower and octagonal spire 130 ft. high. The nave pillars are of polished granite; the roof is of high pitch and partially coloured; the walls are ornamented with illuminated texts. It affords accommodation for 600 persons, and has cost 6,000*l.*

As an example of a village church, we select one of the most pleasing we have seen for some time. St. Paul's, Langley Bury (by Hunton Bridge, Abbot's Langley, Hertfordshire), built at the cost of Jones Loyd, Esq., of Langley Bury, from the designs of Mr. Henry Woodyer, of Grafham. The character and general appearance of the church will be seen from the engraving (Cut No. 1). It is built of square flints and Bath stone, and consists of nave, with north aisle and vestry, chancel, having, on the south, a mortuary chapel of the Loyd family (shown in the engraving), porch, and tower with a shingle spire 130 feet high. The interior is very chaste and quiet, yet sufficiently rich in effect. The nave pillars are clustered shafts of Forest of Dean stone, with good carved capitals; the arcades have figures of angels engaged in prayer and praise, like all the sculptured decoration, very well carved. The whole of the ornamental details, indeed, are marked by the scrupulous finish which characterizes Mr. Woodyer's work. The seats are of oak, and provide accommodation for 200 adults and 60 children. The church stands apart from the little village, and the entrance to the inclosure is by an oak lich-gate of good form. Altogether the church proclaims distinctly its purpose and origin, that of a village church erected by the squire of the neighbouring park, and, therefore, along with the simplicity of a village church, exhibiting something more of richness and elegance than if intended for a strictly rural congregation. Mr. Woodyer is completing another church somewhat similar in character and equally careful in execution, for the Hon. W. Pierpoint, at Brackley, in Northamptonshire, but very judiciously is making it in conformity with the good old county type.

Of the remaining churches, we give a list, arranged, as in previous years, under First Pointed (or Early English), and Second Pointed (or Decorated). This classification, however, it will be understood, merely implies that the church belongs more or less closely to the particular style. It is so customary now to introduce features that do not strictly belong to the style chosen, and often so much that is foreign in character, that it is sometimes only by courtesy that a church can be assigned to a particular class. When not otherwise stated, the church may be understood to consist of a nave and aisles, chancel, vestry, and tower, except in the case of small churches, which have usually only nave and chancel, with a bell-turret instead of a tower and spire.

Among the churches First Pointed in style are—St. Saviour's, *Nottingham*; 731 sittings; cost 3,100*l.*; architect, Mr. R. C. Sutton. St. Saviour's, *Mirfield*, near Dewsbury, Yorkshire; 500 sittings, all free; cost 1,927*l.*; architect, Mr. J. A. Cory. St. Ann's *Congresbury*, Somersetshire; 250 sittings, all free; cost 2,500*l.*, chiefly borne by Mr. R. Phippen; architect, Mr. Norton. *Sheldon*, near Bakewell, Derbyshire; nave, apsidal chancel and bell-turret; cost



No. 1.—St. Paul's, Langley Bury, Hertfordshire.

500*l.*; architect, Mr. Rollinson. *Snowshill*, near Winchcomb, Gloucestershire; 150 sittings; cost 1,700*l.* Christ Church, *Worcester*; nave, chancel, and south aisle; 300 sittings; cost 1,500*l.*; architect, Mr. Howell. St. John the Evangelist, *Masborough*, Yorkshire; cruciform; 800 sittings, all free; cost 3,860*l.*; tower and spire unfinished; architect, Mr. W. White. All Saints, *Whitwood Mere*, near Castleford, Yorkshire; 310 sittings, all free; cost 1,650*l.*; architect, Mr. H. F. Bacon. St. Sebastian's, Ravenswood, *Wokingham*; brick, with Bath stone dressings; nave, chancel, and aisle; 160 sittings, all free; cost 800*l.*; architect, Mr. Butterfield. St. Saviour's, *Bacup*, Lancashire; a much-enriched and costly building, erected by Mr. J. M. Holt; has polished red granite shafts supporting the nave arches and clerestory, apsidal chancel, and spire 150 feet high; 1,050 sittings; architect, Mr. E. W. Tarn. *Culford Heath*, Suffolk; erected at the cost of the Rev. E. R. Benyon, lord of the manor; all the windows of painted glass; nearly 300 sittings; architect, Mr. A. W. Blomfield. St. Mark's, *Dewsbury*; cruciform, with a tower and stone spire 180 feet high; 650 sittings; cost 7,000*l.*; architects, Messrs. Mallinson and Healey, Bradford. St. John, *Welburn*, near Howard Castle, Yorkshire; cruciform, with tower and spire 120 feet high; cost 2,000*l.*; architects, Messrs. Mallinson and Healey. St. Helen's, *Kilnsea*, Patrington, Yorkshire; of dark-red brick with white bands; nave, chancel, and bell-cote; 100 sittings; architect, Mr. A. Burgess. St. Luke's, *Portsea*; apsidal chancel; 900 sittings, 616 free; cost 2,240*l.*; architect, Mr. Hellyer. *Newtown*, near Newbury, Berks; rebuilt at the cost of Mr. and Mrs. E. Arbuthnot; of flint and Bath stone, with octagonal tower; roof of polished oak; tesselated pavement; five windows of chancel, and at end of north aisle, filled with painted glass; 170 sittings; architect, Mr. H. Woodyer. *South Reston*, near Louth, Lincolnshire; nave, chancel, and apse, of coloured bricks and stone; architect, Mr. J. Fowler. *Waters Upton*, Shropshire; on site of old church, but larger; built of local stone, and consists of nave and chancel: 150 sittings, mostly free; cost 1,800*l.*; architect, Mr. G. E. Street. St. Mary Magdalene, *Coatham Mundeville*, Durham; nave and apsidal chancel, with flèche at the junction; 100 sittings; cost 500*l.*; architect, Mr. Withers. St. Wilfrid's *Hayward's Heath*, Sussex; 650 sittings, all free; cost 5,200*l.*; architect, Mr. G. F. Bodley. *Adwell*, near Thame, Oxfordshire; erected at the cost of the late Mr. J. W. N. Birch, of Henley Park; architect, Mr. A. W. Blomfield; St. Mark's, *Cold Ash*, Thatcham, Berks; of grey and red bricks, with stone dressings; nave, apsidal chancel, and bell-turret; 224 sittings; cost 2,000*l.*; architect, Mr. C. N. Beazley. Holy Saviour's, *Hitchin*, Herts; of red brick, with stone dressings, inside as well as out, the dressings inside being ornamented with incised patterns filled in with black cement; bell-turret at west end; 400 sittings; cost 2,900*l.*, defrayed by the Rev. G. Gainsford; architect, Mr. W. Butterfield. *Bromborough*, Cheshire; of local red stone, with white stone dressings; 600 sittings, cost about 5,000*l.*; tower and spire to be added; architect, Mr. G. G. Scott, R.A. St. Mary the Virgin, *Wolverton-End*; nave and apsidal chancel; 150 sittings, all free; erected at the

cost of the vicar of Wolverton; architect, Mr. G. G. Scott. St. Luke, *Weaste*, near Manchester; entirely of stone; nave, aisles, clerestory, and apsidal chancel, 128 ft. by 58 ft., and 45 ft. high; with tower and spire, 115 ft. high, at the west end; 500 sittings; cost, with parsonage and recreation ground, about 11,000*l.*; architect, Mr. G. G. Scott. St. Bartholomew's, Scammonden, *Huddersfield*; cruciform; 380 sittings; cost 1,800*l.*, and materials of old church; architect, Mr. E. W. Tarn. St. Patrick, *Cemaes*, Llanbadrig; nave, chancel, and bell-turret; 184 sittings, all free; cost 720*l.*; architects, Messrs. Kennedy and Rogers, of Bangor. St. John the Evangelist, *Lawley*, Shropshire; 302 sittings, all free; architect, Mr. J. Ladds. St. John the Evangelist, *Boreham*, near Warminster; has nave, north aisle, and chancel; 350 sittings, all free; architect, Mr. G. E. Street. *Pedley-cum-Fenton*, Huntingdonshire; on site of old church; nave and chancel, 70 feet long; tower and tiled spire; cost 1,050*l.*; architect, Mr. W. M. Fawcett, of Cambridge.

Churches Second Pointed in style have been erected, among other places at *Radcliffe*, Lancashire, dedicated to St. Thomas; 1,200 sittings, of which 500 are free; cost 7,274*l.*, the tower being unfinished; architect, Mr. W. Walker, of Manchester. St. Anne's, *Nottingham*; 822 sittings, 532 free; cost 3,100*l.*; architect, Mr. Clark. All Saints, *Nottingham*; spire 175 feet high; a good deal of colour introduced constructively both outside and in; with endowment, cost 20,000*l.*, borne by W. Windley, Esq.; architects, Messrs. Hine and Evans. St. Mary, *Bangor*; 680 sittings, all free; architect, Mr. H. P. Horner, of Liverpool. Holy Trinity, New Leeds, *Bradford*, the seventh of the ten additional churches referred to in our last; 600 sittings; cost 3,000*l.*; architect, Mr. Paley, of Lancaster. *Withycombe-Rawleigh*, Devonshire; cruciform; cost 6,000*l.*; architect, Mr. Ashworth. St. Mary, *Aberdare*; French Gothic; cost 3,800*l.*; architect, Mr. A. Blomfield. *Yardley Gobion*, Northamptonshire; nave and chancel; 150 sittings; cost 1,750*l.*, defrayed by the Duke of Grafton; architect, Mr. White. St. Alban's, Waterloo Road, *Manchester*; has a hexagonal apse, and the spire is intended to be carried to a height of 225 feet; 800 sittings, all free; cost up to opening 7,500*l.*; architect, Mr. Crowther, of Manchester. *Pett*, near Hastings; a very picturesque structure, with a lofty shingle spire; 250 sittings; cost 2,000*l.*; architect, Mr. B. Ferrey. All Saints, *Leyton*, Essex; cruciform, with five-light east window, filled with painted glass by Clayton and Bell; 560 sittings; cost 2,147*l.*; architect, Mr. W. Wigginton. St. Stephen's *Reading*; of red brick, with buff and black bricks in patterns, nave, north aisle, chancel; 400 sittings, all free; cost 2,800*l.*; architect, Mr. White. *Reddish*, near Stockport, Lancashire; 400 sittings, of which 150 are free; cost 2,000*l.*; architects, Messrs. Shellard and Brown, of Manchester. Holy Trinity, *Bury*, Lancashire: nave and north aisle, spire to be added; 600 sittings, all free; cost 5,000*l.*; architect, Mr. Paley. Holy Trinity, *Handsworth*; 612 sittings, 306 free; cost 4,600*l.*; architect, Mr. J. A. Chatwin. St. Mary and St. Peter, *Ludford*, Lincolnshire; cruciform; 358 sittings, of which 232 are free; cost 2,125*l.*; architect, Mr. Fowler, of Louth. St. James the Less, *Hun-*

stanworth; 273 sittings, 130 free: cost 2,500*l.*; architect, Mr. S. S. Teulon. St. John's, *Welburn*, Yorkshire; erected by the late Earl of Carlisle, as a memorial of his mother, on a conspicuous height in full view of Castle Howard; architects, Messrs. Mallinson and Healey. *Llanllwchaiarn*, Cardiganshire; 200 sittings; cost 1,100*l.*; architect Mr. Withers. *Horsepools*, Gloucestershire; 200 sittings, all free; architect, Mr. Daukes. St. John's *Felbridge*; nave and chancel with north aisle, and double bell gable; erected at the cost of Mr. and Mrs. G. Gatty; architect, Mr. W. White. Holy Trinity, Shrub Hill, *Worcester*; very elaborately and expensively adorned with carvings by Mr. Boulton, and painting by Mr. Wells; the roof is that of the fine old Guesten Hall, destroyed by the Worcester vandals two or three years back; 850 sittings, 650 of which are free; cost 7,000*l.*; architect, Mr. W. J. Hopkins, of Worcester. St. Luke's, *Chorlton-upon-Medlock*, Manchester; built at the expense of Mr. R. Gardner; has a tower and broach spire at north-east angle, 140 feet high; fittings of oak; 740 sittings, of which 320 are free; architect, Mr. J. Lowe, jun. Christ Church, *Cockermouth*, Cumberland; 900 sittings, 600 free; architect, Mr. Bruce, of Whitehaven. St. James's, *Gateshead*; nave, north aisle, and chancel; lancet windows except the east, which is five-light, with rich tracery; 534 sittings, 454 being free; cost 3,425*l.*; architects, Messrs. Austin and Johnson. Christ Church, *Fremantle*, near Southampton; cruciform; of Swanap stone with Bath stone dressings; 900 sittings; architect, Mr. W. White. *Meline*, Pembrokeshire; built on site of a plainer church, of the local stone with Bath stone dressings; it consists of a nave, apsidal chancel, with bell gable at the west; 90 sittings; cost 500*l.*; architect, Mr. Withers. St. David's, Bissell-street, *Birmingham*; cruciform, with a tower and spire at the west 150 feet high; of brick, with stone tracery; 1,000 sittings, 750 free; cost 4,500*l.*; architects, Messrs. Martin and Chamberlain. *Eype*, near Symondsbury, Dorsetshire; nave with north aisle, shallow transepts, chancel, and bell turret at the west; erected as a memorial of the late rector of Symondsbury; architect, Mr. Talbot Bury. *Penrhyn*, near Bangor; of local stone, with Anglesea stone dressings; has a tower and spire 110 feet high; 400 sittings; built at the cost of Colonel Pennant. St. Mark, *Friday Bridge*, near Wisbeach; cruciform; 300 sittings; cost 2,500*l.*; architect, Mr. J. H. Owen, of Dublin. *Clack*, Wiltshire; architect, Mr. C. F. Hansom; *Streatley*, Oxfordshire; on site of the old church; architect, Mr. J. C. Buckeridge, of Oxford. Holy Trinity, *Osset*, Yorkshire; cruciform; with a lofty clerestory, and a central cross and spire 226 feet high; nave pillars alternately of polished red and blue granite, tower piers of stone; throughout the church a great deal of elaborate carving, and a large and richly sculptured reredos; east and west windows, each of five lights, filled with painted glass as memorials of members of the Ingham family; 900 seats: architect, Mr. W. H. Crossland, of Leeds.

Of churches in the Third Pointed or Perpendicular style, the only example we have noticed, besides the unfinished church of St. Martin, described above, is the parish church of Bideford, Devon, Mr. Ashworth, of Exeter, architect: and that can hardly be considered an

exception, as it occupies the place and is built in the style of the old church. Of early French Flamboyant we have an example in a church at Broadwater Down, Frant, near Tunbridge Wells. It is a cruciform building with a tower and spire at the north-west angle, and will accommodate 600 worshippers. The cost is about 6,000*l.* defrayed by the Earl of Abergavenny; the architect is Mr. R. Roumieu. At Hawkley, Hampshire, a church has been built in the Norman style at the expense of Mr. J. Maberley. The materials are the local grey rock, with quoins, dressings and tracery of Caen stone. It has a massive tower 100 feet high, and cost 4,000*l.*

Respecting college chapels it will suffice to refer to the progress of that of St. John's College, Cambridge, by Mr. Scott; and the "recasting" by Mr. Burges of that of Worcester College, Oxford. Mr. Street's new chapel for the Grammar School at Uppingham has been opened. It is a handsome building, Second Pointed in style, 100 feet long and 30 wide, with a five-light east window of elaborate tracery; but the building is only partly finished. It has cost nearly 6,000*l.*, but will require as much more to complete it as designed.

The march of church restoration proceeds with still accelerating speed. Even Mr. Scott, the chief restorer of the day, admits that "such is the rage for re-edification" that it has become necessary "to curb excessive zeal, rather than to stimulate the negligent or the apathetic." But the curb will hardly now restrain the demon of restoration. It must run its course. To attempt to check it in full progress is vain, and when it has spent its rage the mischief will have been done past remedy. If church restoration goes on but a few years longer at its present rate, there will not be a Gothic church in England of which the student in the next generation can be sure that it has not been "re-edified" or seriously modified, or that its carvings, mouldings, and tracery—those distinctive details on which so much of the artistic character of a mediæval building depends, and by means of which alone the skill of our mediæval sculptors can be estimated—have not been tampered with, recarved, or even removed to make way for new. And this loss of our English mediæval sculpture—and we had an English school of sculpture not altogether unworthy of study in the thirteenth and fourteenth centuries—is a point but inadequately appreciated. Church restoration is, in fact, annihilating the mediæval sculpture of this country. Those who are destroying in order to restore, must not deceive themselves by the convenient fallacy that the new work is an exact reproduction of the old. New work cannot be an exact reproduction of old, when the old is the work of an artist, and the new the work of an artisan, living centuries later, having every thought, circumstance, and association different, and working in an altogether different state of society, and under entirely different conditions. Even if an exact reproduction were possible, it would be another thing, and not the same. Of course an old church should not be suffered to become dilapidated, or if dilapidated, it should be properly repaired; and in any case it should be maintained in a state befitting its holy purpose. But the old work should be respected: nothing is gained by making it look like new. Our old Gothic cathedrals and churches were felt by every one to be most impressive,

even when in a state of neglect and disrepair. Solemn and venerable were the most usual of the epithets applied to them, and their applicability was felt by all. But whilst 'venerable' would sound ludicrous as applied to a restored church or cathedral, how many would recognize the propriety of the term solemn? Had the churches been judiciously repaired, had whatever was required to be new, been added frankly and honestly *as new*, as the real Gothic builders added their new work, and the old sculpture and tracery been left untouched *as old*, restoration would have been a work to rejoice in, and not as it now almost always is, to mourn over. However, the mischief has been done, as regards a very large proportion of our churches, and in a modified form it will reach the remainder. In the churches still unrestored, more care will doubtless be taken to preserve as much as possible of the mediæval work. But even with the best intentions, architects cannot now perhaps effect very much. The clergy are almost to a man zealous restorers: and by restoration they understand as near an approximation as practicable to the original condition of the building. And the builders, carvers, and masons generally, who have to carry out the operations, have been educated in the system of thorough restoration, and like, above all things, to see and produce a clean piece of work. For the coming generations we shall have done quite as much to destroy English mediæval sculpture by "careful restorations," as the Turks did to destroy the Hellenic sculpture by wilful mutilation. Fragments enough, untouched save by the finger of time, we may hope will escape in our old cathedrals to enable a zealous and well-trained student to form some conception of what English sculpture was at its best in the middle ages, as the mutilated fragments of the marbles of the Parthenon enable the student to form an imperfect conception of the sculpture of the Phidian era. But the greater part of it will be as the Phidian marbles would have been if the Turks instead of allowing us to remove them had set about a "careful restoration;" or, to use a fairer comparison, had they been left, and the modern Greeks undertaken, like modern church restorers, to restore the Parthenon, and proceeded to scrape and re-chisel the surface of the sculpture, supply lost members, or, as the shortest way of proceeding, substitute for the damaged old figures bran new ones made like what the carvers fancied the old ones were when Phidias had given to them the last touch of his chisel.

Mr. Scott is proceeding steadily with his rebuilding at Chichester cathedral; with restorations at Ely (where Mr. Gambier Parry has successfully completed the painting of the roof begun by the late Mr. Le Strange): at Worcester, Chester, Salisbury, St. David's—indeed, it is hard to tell what cathedral he is not restoring; and his church restorations are numberless, whilst many of the structures are of much architectural and historical importance. Since restoration is inevitable, we may rejoice that they have fallen into his hands, as he is deeply pledged to "conservative restoration." But his conservatism only extends to mediæval work. He would, with as little remorse as the bitterest ecclesiologist, sweep away all post-reformation work. Care for the preservation of whatever has an historical and so to speak monumental interest is as much a stranger to the bosom of the modern

Goth as it was to the mediæval. Among the many churches whose fate Mr. Scott holds in his grasp is St. Michael's at St. Alban's, where Bacon worshipped in early life, were his dust rests, and where is his life-like effigy *sic sedebat*. It had fallen into a deplorable condition, and Mr. Scott is restoring it conscientiously. But he has swept away the doorway through which probably Bacon many a time entered the church. It was Elizabethan work, and Baconian associations are of little avail to save what falls on the wrong side of the fatal line. "We should leave things," said another of our most famous restorers, and one who has expressed his anxiety for the preservation of the old work even more strongly perhaps than Mr. Scott himself, "We should leave things as nearly as possible as they were in 1500." Mr. Street is carrying out his views in many a Gothic church, and carrying them out well. In no one's hands is mediæval architecture safer. Mr. Woodyer has a great many country churches under restoration, and with him, too, the old work is safe. But when, as at Heston, the beginning of restoration is the pulling down of the church, it is hard to feel much assurance.

The other process, *recasting*, is also steadily gaining ground. College chapels—happily there are not many college chapels that fall within the category—city churches, village churches, and "those 18th century abominations," chapels-of-ease—churches like Wren's, in Lombard-street, the grim brick block of old Ealing or Shepperton, the prim Greek, or the Georgian "pseudo-Gothic"—all are alike being recast. Some are Italianised, some Gothicised, some become Byzantine, some French, but all doff their drab suits and put on a coat of motley. Could their parents revisit the earth and be made sensible that these were their veritable offspring, they could not help but exclaim, "Bless thee, Bottom, thou art translated!"

The Roman Catholics have built several churches, and have many important works on hand. St. Michael's, West Derby-street, Liverpool, is described as a somewhat striking edifice, "Continental Gothic" in style; of red brick with bands of blue brick, and dressings of Stourton stone; and there is some good carving both on the exterior and inside. The interior is 106 feet by 50; and there are all the features usual in such edifices. It has cost about 5,000*l*. The architect is Mr. E. W. Pugin. Mr. Pugin has also completed the church of Our Lady of Mercy, at Framwell-gate, Durham, in connection with the adjacent convent of the Sisters of Mercy, with which it is united by a covered cloister. The church is Second Pointed in style, and consists of a nave and north aisle, with a hexagonal apse. It is 120 feet long, and 38 wide. Another church by Mr. Pugin, in which sculpture will figure somewhat prominently, St. Mary of the Assumption, Widnes, near Redcorn, is approaching completion; and he is erecting one in connection with a Carmelite convent, in Church-street, Kensington.

Roman Catholic churches or chapels have also been erected at *Newton-le-Willows*, dedicated to St. Mary and St. John; Second Pointed in style; cost 4,000*l*.; architect, Mr. Gilbert Blount. *Whitewell*, Bowland Forest, Yorkshire; First Pointed; cost 700*l*.; architect, Mr. E. W. Pugin. St. Mary, *East Hendred*, Berkshire; has

nave and north aisle, sacristy, chancel, an octagonal belfry; painted glass windows by Messrs. Hardman, and carving by Mr. Boulton of Worcester; architect, Mr. C. A. Buckler of Oxford. St. Mary's, *Blackburn*; Early Second Pointed in style; of red brick with dressings, and tracery of Longridge and Burnley stone; altar by Mr. Boulton; 800 sittings; cost 4,000*l.*; architect, Mr. J. Cundall. Small churches, or portions of churches that are some day to assume greater importance, have also been erected at Hendon; Greenhithe; Barrow-hill, Ashford; Middlewich, Cheshire, and elsewhere.

At Plymouth a convent for the community of Notre Dame has been completed by Mr. Hansom. At Carisbrook, Isle of Wight, a Dominican priory has been commenced from the designs of Mr. Gilbert Blount. Mr. Blount has also made some progress with a convent and church in Southampton-road, Haverstock-hill.

The dissenting bodies, and especially the Congregationalists and Wesleyan Methodists, are finding ample employment for the architect. Generally their churches and chapels are Gothic, but whilst the exterior follows pretty closely the orthodox church form, the interior sometimes departs from it very widely. There is of course no chancel proper, and as a matter of architectural effect the loss is fatal. The arrangements are made, in a word, primarily, with a view to the preaching, and then to the comfort of the congregation. The minister remains throughout the service in one place, whether that be pulpit, or, as is becoming common, platform; and the congregation must both see and hear him. Galleries, too, are still the rule, rather than as now in churches the exception. And, except in very rare cases, there is very little internal ornament, and that is generally unmeaning. It cannot be said that, unfettered as they are by precedent, the dissenting architects (as will be noticed by the following list of names, dissenting places of worship are seldom built by church architects) have thrown any new light on architecture.

The Congregationalists are, however, very earnest in their building operations. The Bicentenary fund for assisting the building of churches among the less wealthy congregations, has reached 100,000*l.*, of which sum 30,000*l.* is said to have been expended in Lancashire. They have also paid 50,000*l.* for a piece of ground in Cannon-street, City, on which to build a Bicentenary Hall, at a cost of 20,000*l.*: one gentleman, Mr. J. R. Mills, M.P., subscribing 10,000*l.* towards the fund, and four others 5,000*l.* each.

Westminster Chapel, James-street, Westminster, takes the first place among Congregationalist chapels completed during the year. It is called Lombardic in style, and is constructed of stock bricks, with red bricks in bands, and Bath stone dressings. On the right of the entrance is a campanile and spire of very ugly outline, 145 feet high. The entrance is by a recessed portico, which leads into a corridor. In plan, the interior is an oblong, with rounded ends, or a blunt oval: the extreme length being 130 feet, width 67. There are two galleries, the lower being carried entirely round. The pulpit is brought forward on a circular platform, which is intended to serve also for public meetings. The ceiling is coved, and from it depend 44 star gas-lights. The appearance of the interior is light and cheerful, but hardly eccle-

siastical: in truth it has rather the aspect of a large concert-room, for which it offers not a bad model. There are 2,400 sittings, all ranged in curved lines to face the pulpit, and "accommodation for 600 more in the standing places." There are besides, a lecture-room for 600 persons, vestries, &c. The cost was about 15,000*l.*; Mr. W. F. Poulton was the architect.

Gospel Oak Chapel, Southampton-road, Haverstock-hill, is of Kentish rag and Bath stone. The entrance is by a projecting porch of rather florid pseudo-Lombardic design. In the front, above, is a good St. Catharine window: the rest of the building is quite plain. With the gallery it will accommodate 750 persons. The architect is Mr. W. A. Dixon; the cost has been about 2,300*l.*

Finchley Green Chapel is a neat Second Pointed edifice of Kentish rag, with Bath stone dressings: it has a tower and slated spire at the north-west angle, 100 feet high. Adjoining is a parsonage, and close by a school with an unusually light and pretty front. The cost has been about 5,500*l.*; the architects were Messrs. Searle. Other chapels of a rather ambitious character have been commenced at Bow, Surbiton, and elsewhere, in the neighbourhood of London.

A few other Congregational chapels may be named: *Knaresborough*, Yorkshire; cruciform, with a tower and slender spire 90 feet high; style, Second Pointed; 420 sittings; cost 2,000*l*; architects, Messrs. Pritchett and Sons, of Darlington. *Pudsey*, Yorkshire; Early French Second Pointed; cruciform; a St. Catharine window in the front, flanked by tall lancets, and at the side a tower and spire 100 feet high; 800 sittings; cost 2,500*l.*; architects, Messrs. Pritchett and Sons. *Maidstone*; front of white brick with Bath stone dressings; style, Italian; 800 sittings; cost 3,000*l.*; architects, Messrs. Habershon and Pite. *Nayland*, Suffolk; of red brick with black bands; 300 sittings; cost 900*l.*; architect, Mr. F. Barnes. Hillhouse, *Huddersfield*; cruciform, with a tower and spire rising from the intersection, to a height of 120 feet; Second Pointed in style; 900 sittings; cost 3,000*l.*; architects, Messrs. Pritchett and Sons. *Bowling*, Yorkshire; style, Romanesque; 500 sittings; cost 3,000*l.*; architects, Messrs. Paull and Ayliffe, of Bradford. *Weybridge*, Surrey; cruciform, with tower and spire, 84 feet high; Second Pointed in style, windows filled with stained glass; 330 sittings; cost 2,100*l.*; architect, Mr. J. Tarring. *Oundle*; Early Second Pointed; 500 sittings; cost 1,620*l.*; architect, Mr. W. F. Poulton. *Faversham*, Kent; Second Pointed; 500 sittings; cost 3,000*l.*; architect, Mr. Poulton. *Harborne*, near Birmingham; Gothic; architect, Mr. Phipson. *Stansted Mountfitchet*, Essex; Lombardo-Venetian; 500 sittings. South Cliff, *Scarborough*; early Second Pointed in style; cruciform, with tower and spire, at S.E. angle, 175 feet high; architects, Messrs. Lockwood and Mawson, of Bradford. *Longridge*, near Preston; late Second Pointed; architect, Mr. M. Smith, of Manchester.

The most noteworthy of the Wesleyan Methodist chapels is one at Clapton, designed by Mr. J. Tarring. It is Second Pointed in style; of Kentish rag, lined in the interior with brick; and has an apsidal termination, and a tower and spire in the centre of the front,

165 feet high. The east and west windows are filled with stained glass. It has cost 5,500*l.*

Wesleyan chapels have also been built at *Shieldfield*, Newcastle-upon-Tyne; nave and aisles, with "orchestra" at the north end, and under the orchestra a minister's vestry; style, Second Pointed; 800 sittings; cost 3,000*l.*; architect, Mr. F. R. N. Haswell, North Shields. *Sacriston*, near Newcastle; red brick; "Gothic;" 300 sittings; architect, Mr. F. R. N. Haswell. Arkwright-street, *Nottingham*; Third Pointed; 750 sittings; cost 2,200*l.*; architect, Mr. Lomax. *Bloxwich*, Staffordshire; First Pointed; 600 sittings; cost 1,500*l.*; architects, Messrs. Loxton, of Wednesbury. *Bedford*; Florentine Gothic; architect, Mr. Palgrave. Islington, *Birmingham*; cost 5,000*l.*; architect, Mr. J. H. Chamberlain. *Mansfield*, Notts; Italian Corinthian; cost 2,500*l.*; architect, Mr. J. S. Norris, of Nottingham. *Pocklington*, Yorkshire; of red brick with stone dressings, portico of 6 Tuscan columns; 700 sittings; cost 2,500*l.*; architect, Mr. R. Widdop, of Snaith. *Corbridge*, Northumberland; Gothic; 360 sittings; cost 1,000*l.*; architect, Mr. Haswell, of Shields. *Gamblesby*, Cumberland; Gothic; architect, Mr. Richardson. *Cherrytree*, Ecclesall; Second Pointed; 500 sittings; cost 1,800*l.*; architects, Messrs. Wilson and Crosland. *Fen Drayton*, Cambridgeshire; Gothic, with tower and spire, 100 feet high; cost 1,200*l.*; architect, Mr. Hutchinson, of Huntingdon. *Lozells*, Birmingham; French First Pointed, with a tower and spire 130 feet high; cost 4,000*l.*; architect, Mr. J. G. Bland. *Milton*, Burslem; a memorial of the late Rev. S. Lee, a native of the village, and the first missionary to New Zealand; Foreign Gothic in style; 300 sittings; cost 1,000*l.*; architects, Messrs. Ward and Ford, of Burslem. St. Peter-street, *Winchester*; First Pointed; cost 2,000*l.*; architect, Mr. Pocock. *Saltburn-by-the-Sea*, Yorkshire; First Pointed; 300 sittings; architect, Mr. Peachey, of Darlington.

The Methodist New Connexion, the Methodist Free Church, the United Methodists, and other members of the Wesleyan body, have built many chapels in the course of the year, particularly in the northern counties, and some of them are rather costly and pretentious buildings.

Baptist chapels have been built at *Acton*; Italian in style; 450 sittings; cost 1,600*l.*; architect, Mr. W. Mumford. Aston Park, *Birmingham*; Third Pointed in style; of red brick with Bath stone dressings; tower and spire 115 feet high; 750 sittings; architect, Mr. Cranston. *Harborne*, Staffordshire; cruciform; Gothic; 300 sittings; cost 2,000*l.*; architect, Mr. A. B. Phipson. *Great Berkhampstead*, Herts; of white brick with red bands, and Bath stone dressings; tower at S.W., with stone spire 90 feet high; 540 sittings; cost 2,000*l.*; architect, Mr. Neale, of Bristol. Lake Road, *Southampton*; Classic, with Corinthian portico; cost of the building, 5,000*l.*; architects, Messrs. Rawlingson and Son, of Southampton. *Keighley*, Yorkshire, adjoining the site of the proposed new Town Hall; style, Lombardic; of local stone; 750 sittings; cost 3,800*l.*; architects, Messrs. Paull and Ayliffe.

The Unitarians in two or three new chapels exhibit the quiet

elegance which usually characterizes their architectural efforts, however much they may vary their style. The new chapel at *Clifton* is Second Pointed in style; is built of local stone with free-stone dressings, and consists of a nave and aisle, chancel, and singers'-gallery. The nave and aisle are divided by five granite shafts; the chancel arch has shafts of polished Devonshire marble. It has 400 seats, and has cost 6,000*l*., but the tower is unfinished. Architects, Messrs. Popes and Bindon. Christ Church, *Devonport*, is Early Second Pointed in style; is built of dark limestone with freestone dressings, and has a tower and spire 80 feet high. The corridors, the stone pulpit, and the corbels which support the roof-timbers, have some good carvings of fruit and flowers, and the large end window is filled with painted glass. It has 480 seats, and has cost about 2,500*l*.; architect, Mr. Norman. A Gothic chapel has been erected at *Newchurch*, from the designs of Mr. Worthington, of Manchester, at a cost of 2,200*l*.: and another at *Loughborough*, with 176 seats, at a cost of 1,500*l*., from the designs of Mr. S. Norris, of that town.

4. Buildings for Public Purposes.

We have this year to record the completion of no great civic hall or assize court. The alterations at the London Guildhall, including a handsome new roof, apparently an imitation of the roof of Westminster Hall, though very costly, hardly come within our classification: the splendid Exchange, and the Grecian Corporation Buildings at Liverpool, are in progress; the assize courts for Bristol, and the Manchester Royal Exchange are only proposed; but several town halls and other municipal buildings of considerable interest have been finished, and several undertaken. The Hulme Town Hall is an Italian building, designed by the City Surveyor, Mr. Lynde. The façade, in the Stretford-road, of Halifax stone, is 184 feet long, and 50 high. It consists of a centre, in which are the public hall, a handsome room, 90 feet by 45, and 38 feet high, and the offices of the township: a west wing appropriated to the Public Free Library, and an east wing for overseer's offices. At Cottingley, Yorkshire, a small town hall, Italian in style, has been erected from the designs of Mr. S. Jackson of Bradford. The more costly town-hall of Hull, by the practised hand of Mr. Brodrick, is approaching completion. Others are in progress or proposed at *Rochdale*, a Gothic edifice on an important scale, designed by Mr. W. H. Crossland of Leeds; at *Bolton*, to cost some 30,000*l*., by Mr. Hill of Leeds; at *Pendleton*, Italian, by Mr. H. A. Darbishire; at *Walsall*, Ionic, by Mr. Nichols, of West Bromwich; at *Romsey*, by Mr. A. Bedborough, of Southampton; at *Ipswich*, Italian, by Messrs. Bellamy and Hardy; at *Burton-on-Trent*, to include town-hall and municipal offices, assembly-rooms, library, museum, baths, &c.; *Chester*; *Towcester*, by Mr. H. Vernon; *Hartlepool*, Italian, by Mr. J. C. Adams; *Westerham, Kent*, &c.

At Birmingham and at Blackburn, Exchange Buildings have been erected by private companies. The Birmingham Exchange forms a

large and conspicuous structure. It has a frontage to Stephenson-place of 186 feet, four stories high, with a central tower and spire rising to a height of 100 feet: the front in New-street is 60 feet long. The style is Venetian Gothic, the materials are coloured bricks and stone. The ground-floor is divided into shops, which do not add to the dignity of its aspect, on the contrary, the exigencies of window-display are a source of weakness. The Exchange Room is 70 feet by 40, and 23 feet high, and over it is an assembly-room of the same size, but five feet higher. There are besides, dining, refreshment, and smoking-rooms, rooms for Masonic meetings and other purposes. From its size, and it is the largest Gothic building in the town, the Exchange forms an important feature in the architecture of Birmingham, but it bears no very distinctive mark of its purpose. The architect was Mr. Edward Holmes.

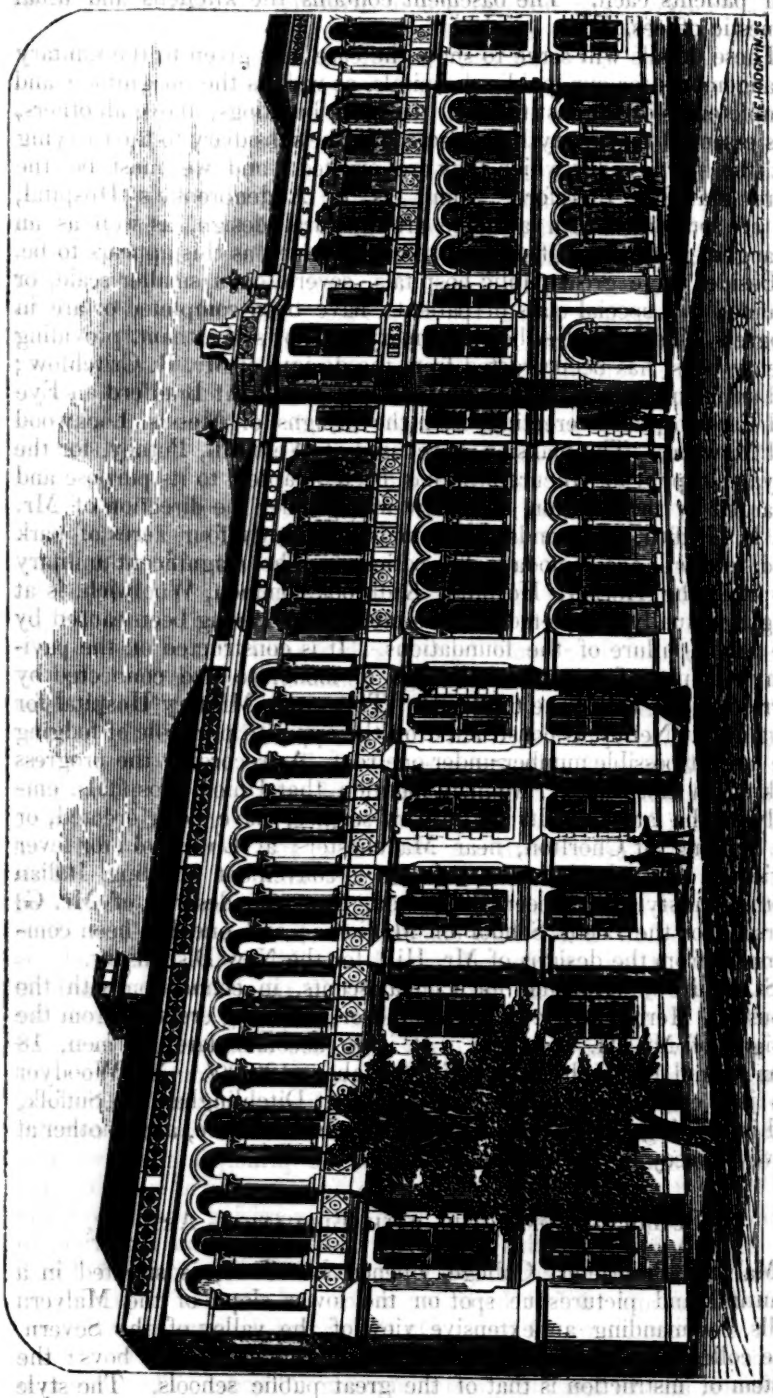
The Blackburn Exchange is English Gothic of the kind rendered familiar by the works of Sir Charles Barry. It is built of Longridge stone, with dressings of Darwen stone in the façade, of Burnley stone in the interior. Care has been given to mark the exchange as the prominent feature of the design. The principal front is divided into bays of alternate two-light windows and long windows, rising from the ground, and has a central tower of three stories, but the third story has not yet been erected. The exchange-room is 149 feet by 53, and 40 feet high to the ridge of the roof. The roof is an open timber hammer-beam one, of high pitch, carried on eighteen cast-iron pillars. It has an orchestra, being intended to serve for public meetings and assemblies. Altogether, it is spoken of as a very handsome room. The architect was Mr. Breakspear, of Manchester.

At Aylesbury a Corn Exchange and Market House has been erected, adjoining the County Hall, from the designs of Mr. David Brandon. It is Elizabethan in style, of red brick with stone dressings. The exchange is a handsome room, 90 feet by 45, and 38 feet high. The roof is supported by semicircular ribs resting upon carved corbels, with tracery in the spandrels. The room being intended for meetings and concerts, has an orchestra, in which it is proposed to place an organ. It receives light from a skylight 70 feet long, as well as from the windows of the clerestory. The market, at the rear, is 112 feet by 61, and has a roof of three spans supported by iron columns and brackets. The entire cost was about 10,000*l*. Corn exchanges have also been erected at Basingstoke, from the designs of Messrs. Wyatt and Slater; at Manningtree, by Mr. Barnes, of Ipswich, and elsewhere.

The designs for St. Thomas's Hospital are determined on, and the works will be commenced as soon as the ground is ready. As the reader is aware, the site for the hospital is a piece of land to be reclaimed from the river by the Thames Southern Embankment, the contractor for which is bound to have the site for the hospital inclosed within a water-tight dam, within nine months from his commencing operations. The hospital will extend along the river from Westminster Bridge towards Lambeth Palace, for a distance of 1,200 feet, and will extend back to the Palace New-road, a depth exceed-

ing 200 feet. The hospital will be arranged on what is known as the Pavilion System—that is, it will be a series of distinct buildings instead of one large edifice, thereby admitting a more abundant supply of pure air, and more perfect sanitary arrangements. There will be seven of these pavilions, with their end façades towards the river, placed at distances of 125 feet, apart, except the central space, which will be 200 feet. Each pavilion will be four stories high, including the ground-floor. There will be 44 wards, each 120 feet long, 28 feet wide, and 15 feet high, and containing in the aggregate 588 beds. The administrative offices, receiving-rooms, museums, lecture-room, official residences, &c., will form a large block of buildings extending along the New Palace-road, where will be the entrance to the hospital. The chapel will be on the first-floor, over the entrance vestibule, and will have 300 seats. The pavilions will be connected with each other, and with the building in the rear by corridors. Every provision is made for the comfort and sanitary well-being of the patients, and the most approved appliances will be introduced. To ensure dryness, the building will be based on a bed of concrete ten feet thick. It will be constructed or faced with stone, and is estimated to cost about 360,000*l*. Mr. H. Curry is the architect. As we have said before, whilst giving all praise to the thoughtful provision for the health and comfort of the patients, it is impossible not to regret that a building of such extent should not present to the river some better architectural feature than seven exactly similar, equidistant, and very commonplace fronts.

The building of which we give an engraving (Cut No. 2), from drawings kindly furnished by the architect, Mr. M. D. Wyatt, occupies the site of a long dreary pile in Trumpington-street, Cambridge, familiar, no doubt, to many of our readers. The new Addenbrooke's Hospital, as will be seen, is a very striking edifice. It consists of a centre with recessed loggie, and two wings—only one of which the scale of our engraving permits us to show. This Trumpington-street front is about 300 feet long, and is constructed of warm yellow brick with coloured brick, terra cotta, and stone dressings. It has a noble and, as such a building should have, cheerful aspect. The ground floor contains in the left wing a ward 59 feet long, 28 wide, and 13 feet 6 inches high, in which are beds for 15 males, whilst adjoining is every necessary requirement, including cold, douche, and vapour baths. The right wing contains the waiting-room for out-patients, physicians and house-surgeons' rooms, &c. Entering in the centre of the principal front we reach a corridor which communicates with both wings, the principal staircases, &c. On the first floor, in the centre of the frontage, is a convalescent-room for males, communicating with an exercising space over the colonnade below; and this space has also access from a corridor in direct communication with two wards, each 79 feet long, 28 feet 9 inches wide, and 16 feet high, for males and females respectively: each ward containing 19 beds. On the second-floor are two surgeons' wards, one for males, the other for females: each 91 feet by 28 feet 9 inches, and 16 feet high, and containing 23 beds. There are also two smaller wards on the right and left of the operating-room, for



No. 2.—Addenbrooke's Hospital, Cambridge.

four patients each. The basement contains the kitchens and usual domestic offices.

These details will serve to show the care now given to the sanitary arrangements for our public hospitals, as well as the magnitude and completeness of the institutions. In these buildings, above all others, it is essential that everything else should be subsidiary to the carrying out the purpose for which they are erected; and we must be the more grateful, therefore, when, as in Addenbrooke's Hospital, we are presented with a noble architectural design, as well as an arrangement of the edifice itself so well planned as this appears to be.

Besides these great public hospitals, several on a smaller scale, or confined to a special class of patients, have been completed or are in progress. The Royal Albert Infirmary, Bishop's Waltham, providing twenty beds, has been erected from the designs of Mr. R. Critchlow; and an infirmary has been begun at Doncaster. At Bradford an Eye and Ear Hospital is erecting, from the designs of Messrs. Lockwood and Mawson. The mansion purchased at West-hill, Putney, for the Royal Hospital for Incurables, has been adapted to its purpose and enlarged by the addition of a new wing, under the direction of Mr. W. P. Griffith. It stands in the midst of twenty-four acres of park land, and will accommodate 200 patients. The magnificent military hospital, the Herbert Hospital, Kidbrook-common, Woolwich, is at length virtually completed, considerable delay having been caused by the partial failure of the foundations. It is constructed on the pavilion principle, of separate buildings of moderate size connected by corridors, and will have 650 beds. The great Military Hospital for Invalids, at Netley, is constructed on the opposite principle of lodging the largest possible number under one roof. As recording the progress making in this matter, we may mention that Union Hospitals, embodying the latest results of sanitary science, have been erected, or are building, at Chorlton, near Manchester; at Liverpool (for fever patients), and elewhere. At Leeds a convenient building, Italian Gothic in style, has been completed, from the designs of Mr. G. Corson, for the Leeds School of Medicine; and one has been commenced, from the designs of Mr. Hill, for the New Dispensary.

St. Andrew's Hospital for Convalescents, in connection with the House of Mercy, at Clewer, by Windsor, is being erected, from the designs of Mr. H. Woodyer. It is to accommodate 24 men, 18 women, and 15 children, and will cost about 12,000*l*. Mr. Woodyer has just completed a House of Mercy at Ditchlingham, in Suffolk, and is erecting a large one at Haley Hill, in Yorkshire, and another at Bovey Tracey for the county of Devon.

5. Buildings connected with Education, Art, &c.

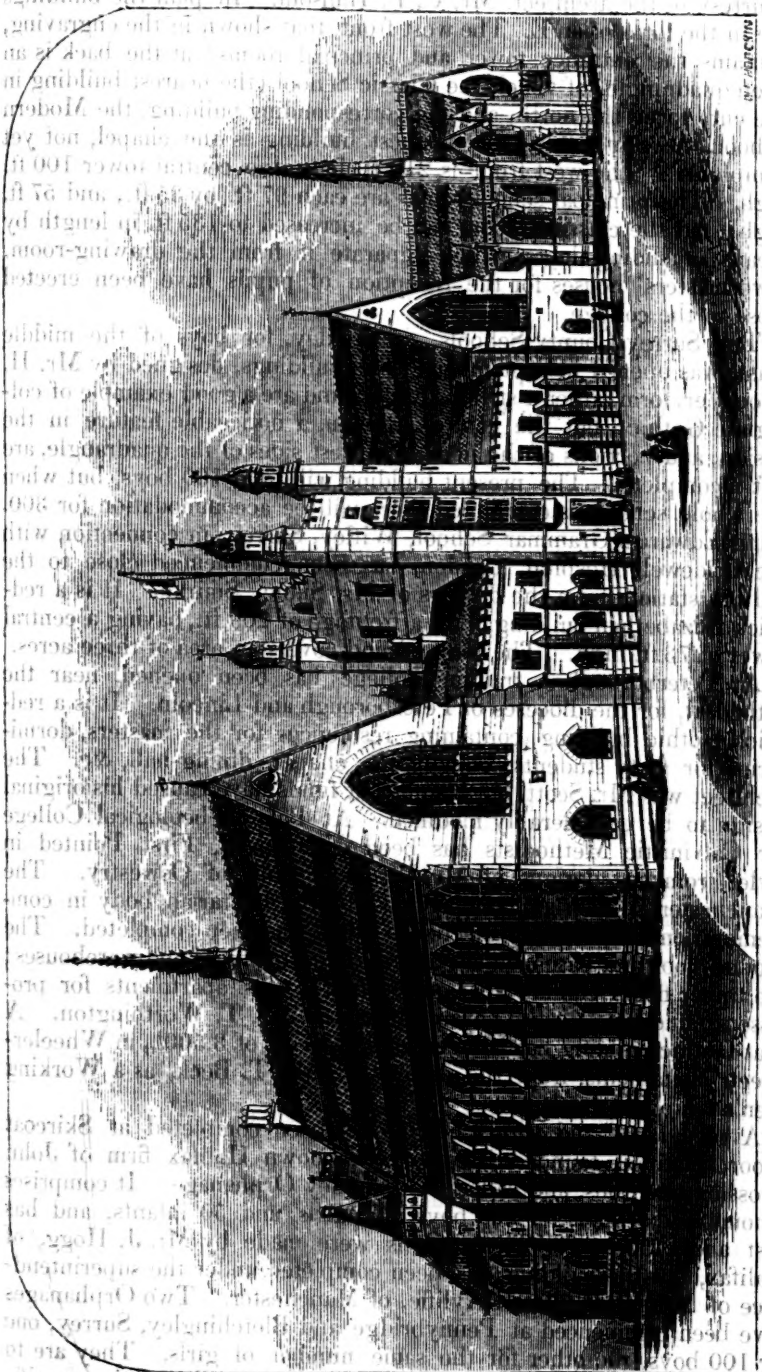
Malvern Proprietary College, opened last June, is situated in a beautiful and picturesque spot on the lower slope of the Malvern Hills, commanding an extensive view of the valley of the Severn. The college buildings are intended to accommodate 600 boys: the system of instruction is that of the great public schools. The style and character of the buildings will be seen from the engraving

(Cut No. 3), made from a drawing for which we are indebted to the courtesy of the architect, Mr. C. F. Hansom. In plan the buildings are in the form of an E. The west front, that shown in the engraving, contains the entrance tower and principal rooms; at the back is an open quadrangle, of which the Classic School (the nearest building in the cut) forms the north, and the corresponding building, the Modern School, the south side; the farthest building is the chapel, not yet completed. The west front is 210 ft. long, the central tower 100 ft. high. The principal school-rooms are each 97 ft. by 35 ft., and 57 ft. high; but the classical room can be increased to 135 ft. in length by means of sliding-doors, which separate it from the drawing-room. Two masters' houses for the reception of pupils have been erected close to the college.

The Surrey County Schools, at Cranley, for boys of the middle class, was opened in September. The buildings, designed by Mr. H. Woodyer, form rather a striking group, and are a good example of collegiate Gothic; but the central kitchen, a noticeable feature in the design, and portions of the north and west sides of the quadrangle, are left incomplete. The present building will hold 160 boys, but when the whole scheme is completed there will be accommodation for 300. King Edward's Grammar School, Witley, Surrey, in connection with the Bridewell Hospital, London, has been commenced close to the railway station, from the designs of Mr. Sidney Smirke. It is a red-brick Elizabethan building, with a frontage of 209 ft., having a central tower of 73 ft. high. The play-ground covers an area of three acres.

At Peterborough a training college has been opened, near the cathedral, for the dioceses of Peterborough and Lincoln. It is a red-brick Gothic building, containing residences for the masters, dormitories for forty students, class-rooms, chapel, dining-hall, &c. The architect was Mr. Scott, but insufficient funds have caused his original design to be considerably modified. At Bala a Theological College for Calvinistic Methodists has been commenced, First Pointed in style, from the designs of Mr. W. H. Spaull, of Oswestry. The Manchester Memorial Hall, erected by the Unitarian body in commemoration of the clergy ejected in 1662, has been completed. The ground-floor and basement are appropriated to offices and warehouses; the upper floors contain spacious lecture rooms, apartments for professors, students, &c. The architect was Mr. T. Worthington. A neat Gothic building has been erected at a cost of 3,500*l*., in Wheeler-street, Spitalfields, from the designs of Mr. T. Beck, as a Working Men's Club and Institute.

A very large and showy edifice has been completed at Skircoat Moor, Halifax, founded by the well-known Halifax firm of John Crossley and Sons, and called the Crossley Orphanage. It comprises a home and schools for 200 boys, 200 girls, and 50 infants, and has cost about 50,000*l*. The designs were made by Mr. J. Hogg, of Halifax, but the building has been completed under the superintendence of Messrs. Paull and Ayliffe, of Manchester. Two Orphanages have been commenced at Pennybridge and Bletchingley, Surrey, one for 100 boys, the other for the same number of girls. They are to be Gothic buildings, and, with the endowments, will cost the munifi-



No. 3.—Malvern Proprietary College: West Front.

cent foundress, the Duchess of Leeds, above 70,000*l.* Mr. E. W. Pugin is the architect. The Royal Masonic Institution for Boys, Wood Green, Tottenham, designed by Mr. E. Pearce, was opened in July last. It is a spacious and showy but not altogether satisfactory semi-Gothic structure, of white brick, with Bolsover stone dressings, and affords accommodation for 150 boys, the sons of indigent Freemasons. The cost has been about 24,000*l.* The Warehousemen and Clerks' Orphan Asylum at Caterham, Surrey, has also been completed. It is constructed of red brick, relieved with alternate bands and dressings of white stone; is Venetian Gothic in style, and, from its elevated site, forms a conspicuous but somewhat incongruous object for a considerable distance. It affords accommodation for 150 boys and girls, and cost about 20,000*l.* The architect was Mr. Bland.

For the Guild of Literature and Art three houses have been completed, on a site near Stevenage presented by Sir E. B. Lytton. They are of red brick, with stone dressings, designed by Mr. H. A. Darbishire in his usual quiet and effective style; are very convenient in their arrangements, have spacious gardens, and occupy a pleasant and commanding site.

During the past year the Surrey Theatre and Saville House, London, the Sheffield Theatre and a Theatre in Edinburgh, have been destroyed by fire. Happily no loss of life occurred, but in either case the difference of an hour or two in the outbreak of the fire might have led to a serious catastrophe. The frequent occurrence of these disasters ought to induce a more stringent and authoritative supervision of the means of egress provided in theatres and places of public resort. Several of our most frequented theatres, and those in which, from the character of the pieces represented, fire is to be particularly dreaded, have not only very inadequate means of egress, but those most inefficiently arranged. And our largest concert-rooms—such as Exeter Hall, where the seats for the audience and chorus are constructed as though to carry flames in the swiftest possible way round the building; and St. Martin's Hall, where the staircases from the opposite sides of the room (the only means of egress) converge to a point—would, if a panic occurred on a crowded night, be even more dangerous places than the theatres. Surely it would be no undue interference with property or liberty if, where the public safety is so seriously involved, the system of access and egress, or at any rate of egress, were regulated by law and subjected to competent supervision.

The Surrey Theatre is being rebuilt, under the direction of Mr. J. Ellis, and it is said the architect will pay especial regard to this matter: but the same has been said of many other such places, and after all no great improvement has been visible. What is promised may be accomplished, but it ought not to be left to mere private goodwill and judgment. Saville House is to be rebuilt, from the designs of Messrs. Nelson and Innes; and a new theatre, to be called the "Holborn Theatre Royal," is proposed to be built, by a limited liability company, on the site of Brownlow Mews, Holborn, from the designs of Messrs. Finch, Hill, and Paraire.

The New Theatre Royal, Nottingham, erected from the designs of Mr. J. C. Phipps, was opened in September last. The principal front

is a portico of six Corinthian columns. The auditory is described as "a semicircle of 36 feet diameter, opening, before reaching its diameter, by curves of a contrary flexure, to a width of 48 feet at the first column of the proscenium." The arrangements, both before and behind the curtain, present some novel features; the approaches to all parts are by fire-proof staircases and external corridors, and careful provision is said to be made against fire and for easy egress. The theatre affords accommodation for 2,500, and cost nearly 15,000*l*. New theatres have been commenced at Hull, from the designs of Mr. J. R. Smith; and at Hartlepool; and others are proposed at Liverpool and at South Shields. At Southampton a new music-hall, "The Philharmonic Rooms," of rather florid design, has been erected by Mr. A. Bedborough.

6. Street Architecture.

However tardy may be the progress of street improvements, if street architecture is not improving very rapidly, the fault must lie with the architects. It cannot be for want of opportunities. For certainly since the years following the Great Fire, London never saw anything like the amount of costly and sumptuous building now going on. To one returning to it after an absence like that of the mythical sleeper, the heart of the City might seem to have become the head-quarters of some huge building corporation, with its agents and operations radiating in all directions, pulling down and building up at will, uncontrolled by public or private convenience, and unrestrained by fear of expense. But a glance at the new and unfinished edifices would speedily dissipate any such fantasy. Every man, it would be evident, is doing that which is good in his own eyes. There can be no central controlling power where all the parts are incongruous, where each appears not only in rivalry but antagonism with the other. Later thoughts might suggest that a building mania had taken possession of the wealthy inhabitants, affecting alike individuals, and firms, and companies, and on the whole this would not be the most irrational way of accounting for the phenomena.

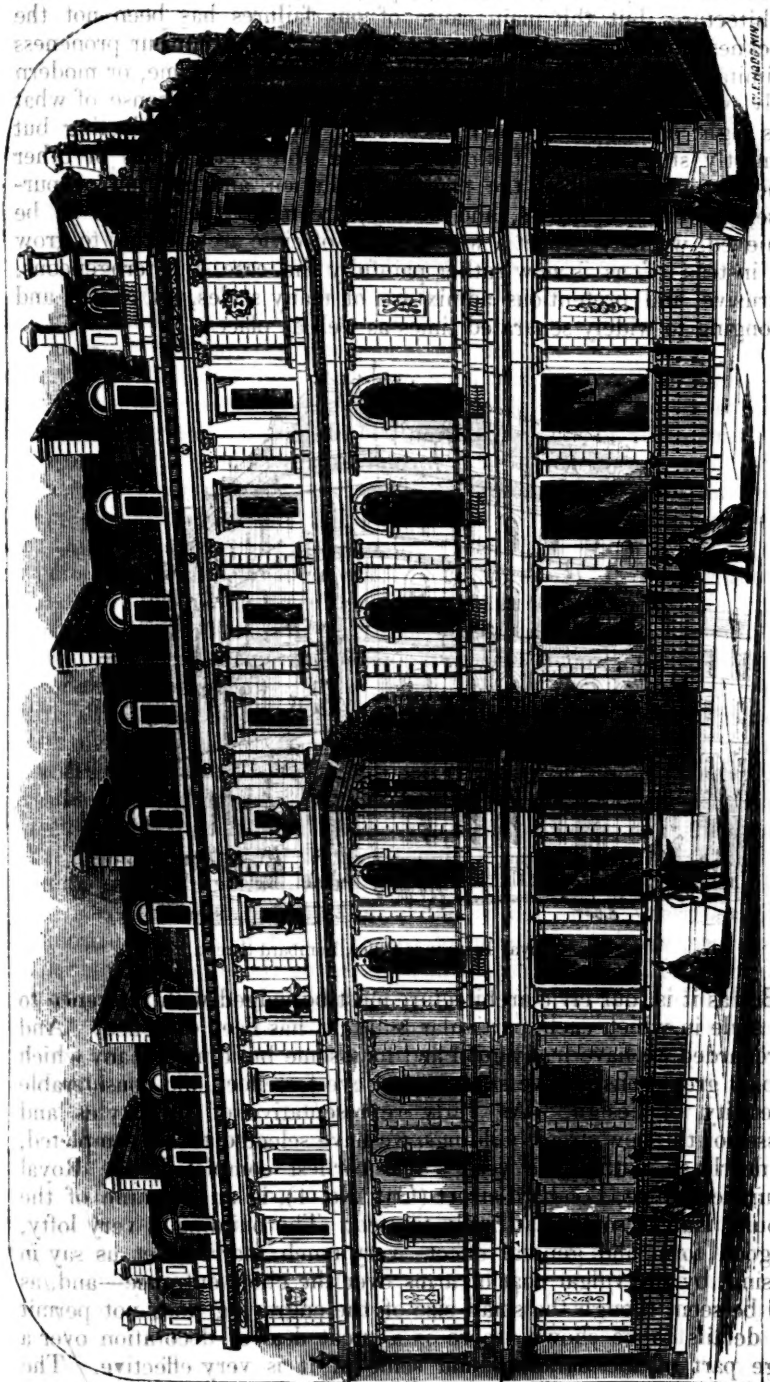
But is all this building conducing to architectural progress? Mr. Ruskin, who seems to have constituted himself the prophet of architectural woe, beholds in it only evil; a singular proof, as he said in a recent Jeremiad (delivered before the Institute of British Architects, May 15, 1865), "of the vanity of all hope that conditions of art may be combined with the occupations of such a city." Right architecture is impossible in the London of the nineteenth century. "All lovely architecture was designed for cities in cloudless air, in which piazzas and gardens opened in bright populousness and peace; but our cities, built in black air, which, by its accumulated foulness, first renders all ornament invisible in distance, and then chokes its interstices; cities, which are mere crowded masses of store and warehouses, in which the object of men is not life but labour; for a city or cities such as this no architecture is possible, nay, no desire of it is possible to their inhabitants."

We do not share these misgivings. Wherever there is a sense of truth and beauty there is a capacity for art, and there will be the

desire for it. We have made many and grave mistakes in our civic architecture, but the main cause of our failures has been not the blackness of our skies, nor our devotion to labour, but our proneness to imitation. We have gone to ancient Greece or Rome, or modern Italy, when we ought to have trusted more to our own sense of what was right and beautiful and becoming. When, not neglecting but earnestly studying and faithfully prizing the great works of other times, assimilation takes the place of imitation, and relation of purpose, convenience, fitness, and beauty, are made the objects to be achieved, we may expect a worthy style of civic architecture to grow up, instead of, as is now rather painfully the case, a heterogeneous, obtrusive, and pretentious admixture of many styles, all exotic, and belonging to widely separated times as well as places.

No. 4.—Royal Insurance Office, Lombard Street.

But as it is, our civic architecture must be judged with reference to the style in which each particular building has been designed. And so regarded we have many good and handsome buildings; many which display great constructive skill, a good eye for effect, and considerable ingenuity of design. As fairly representative of the styles and classes of the new street buildings, we have selected three, completed, or nearly so, within the year. The earliest completed, the Royal Insurance Office, Lombard-street (Cut No. 4), is an example of the popular Italian, somewhat freely treated. The building is very lofty, of good form and general effect—very much marred, let us say in passing, by the vulgar coat of arms over the chief entrance—and, as will be seen, though the small size of the engraving does not permit the details to be shown, there is a great deal of decoration over a large part of the building, and some of it is very effective. The principal entrance, at the corner of Clement's-lane, is made an impor-



No. 5.—Union Bank, Chancery Lane and Carey Street.

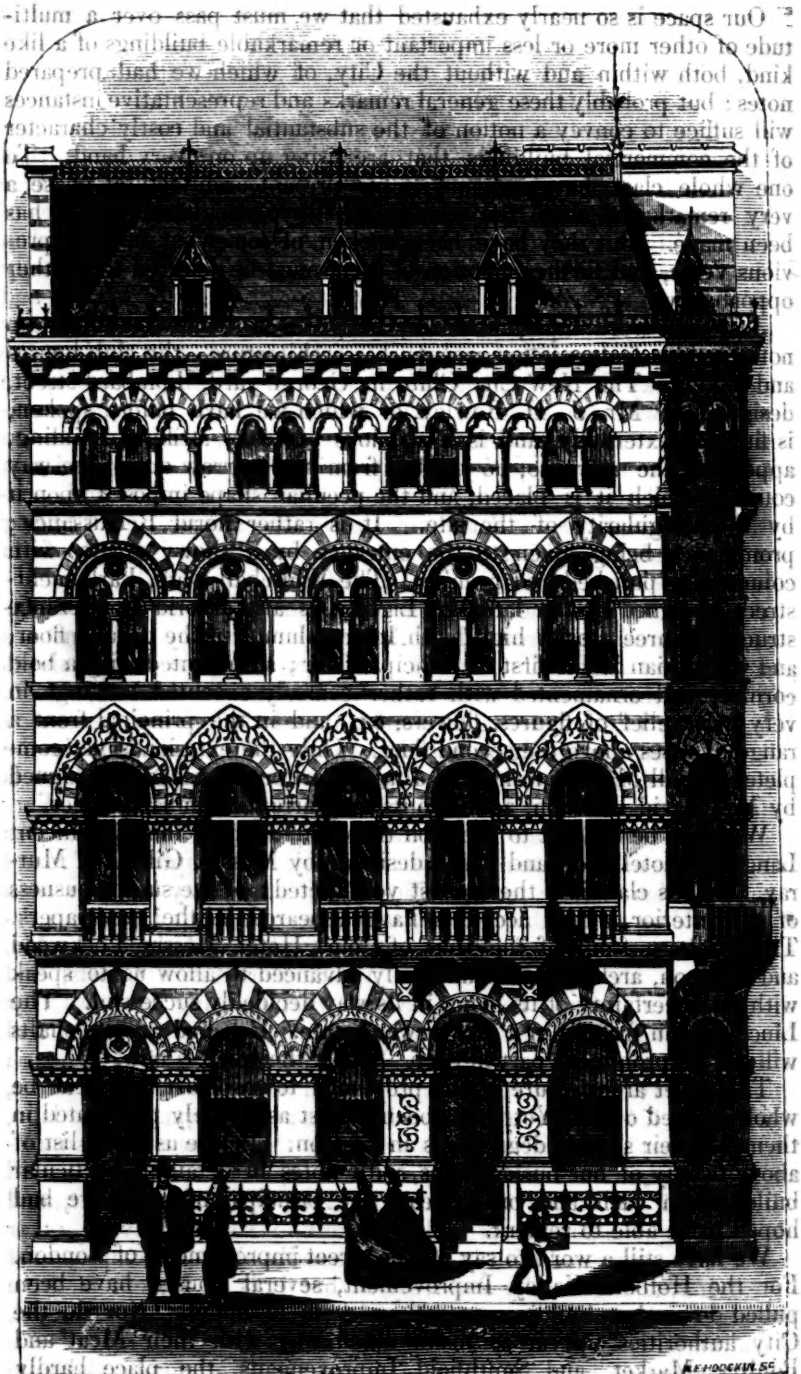
tant feature; here polished red granite, with an incised pattern, is a successful novelty. There is also novelty, as well as artistic feeling, in the substitution of a slightly raised leaf-pattern for the ordinary rustication. The building is said to have cost about 17,000*l.*, the architect was Mr. J. Belcher.

Our second illustration of current street architecture is the Union Bank, Chancery-lane and Carey-street, designed by Mr. F. W. Porter. The general character and appearance of the building are sufficiently shown in the engraving (Cut No. 5), the drawing for which was made from elevations kindly lent by the architect. The building itself is of considerable magnitude. The Carey-street front, that shown in the cut, is 143 feet long; the Chancery-lane front, 50 feet. It is throughout of Portland stone, except the shafts of the columns at the bank entrance, which are of polished red granite. The façade, as will be observed, displays the three orders after a type not unfamiliar in Rome: Tuscan in the ground floor, Ionic in the first, and Corinthian in the second floor. There is a little more enrichment in the Chancery-lane front, and the columns are detached. As a whole it is a very noble building: stately, solid, simple, not overlaid with ornament, and sufficiently varied without being unsymmetrical. As the most recent example of this class of building we may add one or two details respecting the interior. The bank-room is, of course, on the ground floor, and is 90 feet by 35, and 19 feet high. The manager's rooms adjoin it; and the remainder of the ground floor is divided into sets of offices, with a distinct entrance at the corner of Carey-street and Star-yard. Except the manager's apartments, at the Chancery-lane end of the first, second, and attic floors, the whole of the upper part is also divided into offices. The basement forms the strong room of the bank, and is fitted with a hydraulic lift for raising and lowering heavy boxes. The cost of the building was about 30,000*l.* Another Union Bank, for the same company, is fast rising on the site of the old bank of Sir William Lubbock, in Mansion House-street. This, too, is Italian in style, and will also be a stately structure, worthy, no doubt, of the practised hand of the architect, Mr. P. C. Hardwick; but, whilst possessing the solid character which Mr. Hardwick never fails to impart to buildings of this class, it hardly promises to attain the same striking nobility of aspect as that in Chancery-lane. Mr. Hardwick has completed this year yet another great bank, that of Messrs. Barclay, Bevan, and Co., in Lombard-street, a work of great importance and dignity; but, as it seems to us, far too massive in style for the narrow street in which it stands.

Whilst speaking of banks we may as well refer to the remarkable building approaching completion for the National Provincial Bank of England, at the corner of Threadneedle-street, adjoining the old South Sea House. In this we have a more decided return to the old classical model, and a bolder employment of sculpture than in any building erected in London for a considerable period. The peculiar form of the site, however, and the necessity for economizing space, prevented the architect from following any particular model, if he were so disposed. The building is of the Roman Corinthian order, the lofty fluted columns forming a main feature of the design. Of these

there are three single in the principal front, with coupled columns at the end and at the curve, on either side of the entrance. There is but a single row of windows, one between each column, and above each window is a large relief representing, as would seem, science, the arts, manufactures, commerce, agriculture, and navigation; and over the doorway one still larger, of the nations bringing the fruits of the earth to Britain; whilst the architrave is crowned by a large allegorical group over the entrance, and over each column statues of London and the chief provincial towns. The sculpture is designed in a simple and manly style, and well and boldly executed, and certainly produces a very striking effect. How it will stand the smoke and atmosphere of Bishopsgate we hardly like to forecast; but as we saw it with the newly-erected statues, standing out sharply against the clear blue sky of one of the brightest days of last September, the appearance was very striking. The building is still too much cumbered about with scaffolding to be properly seen, but we advise the reader to take an opportunity of visiting it before the smoke and rain have dimned its freshness. The bank-room, we ought to add, promises to be almost as novel and striking as the exterior. The ceiling is coved, and, in addition to the windows, it will receive light from three dome-shaped lanterns. The architect is Mr. J. Gibson.

As an example of the application of Gothic to our street architecture, we engrave the Crown Life Assurance Office, by St. Dunstan's church, Fleet-street (Cut No. 6). The engraving so clearly shows the design, that we are spared from describing it. As will be seen, it is a pretty close rendering of Venetian, and the principle is carried out most conscientiously in all the details. Portland stone is the material used in the front and capitals, and polychromatic effect is obtained by means of red Mansfield, Forest of Dean, and blue Warwick stone, with Sicilian marble over the arches. The architect was Mr. T. Newenham Deane. Another very elegant adaptation of round arched Italian Gothic to our office architecture, may be seen in a large building in Lombard-street, with a second front in Clement's-lane, opposite the Royal Insurance Office. It was designed by Mr. Waterhouse, the architect of the Manchester Assize Courts, and though not in any way comparable with that building, it shows that Mr. Waterhouse can design effectively in a very different style, and is a rich yet unobtrusive structure. The Clement's-lane front, though similar in style, differs considerably from that in Lombard-street, from which it is cut off by a small building at the corner of the lane, and produces a feeling of freshness from the likeness in dissimilitude. Another but more florid Italian range of offices, in Cornhill with, like it, a second dissevered front in Bishopsgate-street, and also making similar use of polished granite shafts, may in other respects be contrasted with it, by its unusually abundant employment of carving, and generally florid style; but it is at present far from finished, and cannot therefore be fairly judged. Of this Mr. E. Woodthorpe is the architect. Opposite the Bishopsgate front of this again, at the corner of Leadenhall-street, an exceedingly elaborate semi-Italian structure, designed by Mr. T. Allom, is fast rising for the London and Lancashire Insurance Company.



No. 6.—Crown Life Assurance Office, Fleet Street.

Our space is so nearly exhausted that we must pass over a multitude of other more or less important or remarkable buildings of a like kind, both within and without the City, of which we had prepared notes: but probably these general remarks and representative instances will suffice to convey a notion of the substantial and costly character of the commercial buildings that are rising up on every hand. To one whole class, however, and in its present architectural phase a very remarkable class, the warehouses, no particular reference has been made. But they have been spoken of somewhat fully in previous years, and further mention of them must be deferred to another opportunity.

Just one word must, however, be given to what constitutes so noteworthy a feature in our recent urban architecture—the club-houses and hotels. The New City Club, in George-yard, Lombard-street, designed by Mr. J. H. Rowley, of which we have before spoken, is finished externally, and is a spacious and very striking building, appearing the more so, no doubt, from the narrow out-of-the-way court in which it is placed, and the peculiar shape imposed upon it by the irregularity of the site. It is rather florid Renaissance; prominence being given to the entrance by a showy portico with columns of polished red granite. The Whitehall Club, Parliament-street, designed by the late Mr. Lightly, is also a florid Renaissance structure, three stories high, with Ionic columns in the ground floor, and Corinthian in the first or principal floor; surmounted with a bold cornice, and ornamented with rather coarsely-executed carvings in very high relief of figures, flowers, &c., and in the principal front a range of vases above the second floor. Only the exterior is yet completed. Pall Mall is to have a Junior Carlton Club-house, designed by Mr. David Brandon, added to its long array of similar palaces.

We must be content to mention the completion of the magnificent Langham Hotel, Portland-place, designed by Messrs. Giles and Murray. Of its class it is the noblest yet erected: of the sumptuousness of the interior, ample accounts have appeared in the newspapers. The Holborn front of the Inns of Court Hotel, Messrs. Lockwood and Mawson, architects, is sufficiently advanced to allow us to speak with some certainty of its being in its way decidedly successful. The Lincoln's Inn front is in a less forward state. Polished granite shafts will play a prominent part in each—whilst the work is new.

The street architecture of the provincial towns must this year be wholly passed over. Yet it has been almost as actively prosecuted in them, in their several degrees, as in London. Before us lies a list of above twenty of our busier towns, with notes in detail of particular buildings in each, and on at least the principal of which we had hoped to be able to remark.

We have still a word to say on the street improvements of London. For the Holborn Valley Improvement, several houses have been pulled down, but building operations seem to linger. Nor do the City authorities appear to make much way with their Meat and Poultry Market, and Smithfield Improvements, the place hardly showing signs of change since this time last year. New Farringdon-road has been a good deal obstructed by the works of the Metropo-

litan Railway; but the City Industrial Dwellings, and three or four large stacks of handsome warehouses and workshops are removing from it a little of its desolate, unfinished aspect. The Metropolitan Board of Works, like all large bodies, move slowly: but in this matter of street improvement they are not quite stagnant. They have let this year pass like the last without commencing the new street from Blackfriars to the Mansion House, and the delay we may hope will at least lead them to see the necessity of making some provision against the great additional traffic they will thus throw upon that already fearfully over-loaded City centre. Along Southwark-street one or two more warehouses have been built, but the place grows up very tardily. A little thing that has happened here will probably lead the Board to use more prevision in drawing their future Bills for the Houses of Parliament. As will be remembered, a subway was formed along Southwark-street for the reception of gas and water-pipes, &c., in order to render unnecessary the breaking up of the street whenever the pipes had to be relaid, or even reached. But the Southwark-street Act has no clause to compel the use of the subway, and now the Southwark Water Company declines to use it, and so all the old gas and water annoyances are likely to be perpetuated. Last Session the Metropolitan Board lost their Bill for making a thoroughfare through Hamilton-place to Park-lane; but obtained an Act for continuing the Commercial-road into Whitechapel, by Commercial-street, and for the removal of Middle-row, Holborn. Carey-street, Chancery-lane, is to be widened by setting back its northern side; and some trifling widening of the Strand is to be made by St. Clement's Dane. One of the most remarkable alterations in London is proceeding noiselessly on the Marquis of Westminster's estate. Grosvenor-place will be carried in a nearly direct line to the Grosvenor Hotel, the lower part being widened to 60 feet; whilst west of Grosvenor-place, several streets will be more or less cleared away. In all, about 160 houses, beginning with the mansions next St. George's Hospital, will be removed, and about 60 first-class houses built in their place. These are intended to have a good deal of architectural character, Mr. Street having been called in to design some, Mr. Barry others, in which terra-cotta is to be largely used in the decorations; and some are entrusted to Mr. Cundy. Opposite the Grosvenor Hotel the improvements will terminate with the Belgrave Mansions, a large block of buildings comprising *maisons meubles*, of 200 rooms in the upper floors, whilst the ground-floor will be appropriated as a superior *restaurant*, shops, &c.

7. Bridges, Docks, &c.

The foundation-stone of Blackfriars Bridge has been laid, and by next year we may expect to see very perceptible progress. Of the bridges higher up the Thames, that at Hampton Court is the only one which has proceeded far; but however useful, it will hardly be very ornamental. The Clifton Suspension Bridge has been opened, and appears to be in all respects successful. Among projected bridges the most remarkable is one to cross the Mersey from Derby-square,

Liverpool, to Hamilton-square, Birkenhead. It is to be carried on lattice-work piers at a height of 160 feet above high-water level; the width of each of the two central spans being 1,500 feet; but at present it is only a project. Even more remarkable is the bridge by which it is proposed to carry the South Wales and Great Western Direct Railway across the Severn. The bridge, if carried out as designed by the engineers, Messrs. Fowler and Fulton, will be two and a quarter miles long, have a headway of 125 feet between the platform and the level of mean tide, and a central span of 600 feet. The estimated cost is 980,000*l.*

Besides the great docks constructing for the Government at Chatham and Portsmouth, several important works are in progress. The Penarth Dock, near Cardiff, commenced in 1851, has been completed. It is 2,100 feet long, and 370 feet wide, covering an area of 17½ acres. The basin has an area of 3 acres; the lock is 400 feet long and 300 wide; the sea-entrance is 60 feet wide, with a depth of water over the sill of 35 feet at spring, and 25 feet at neap tides. It will admit larger vessels than any other dock in the Bristol Channel. The extensive new works connected with Prince's Dock, Liverpool, are being vigorously prosecuted. At Sunderland and at Jarrow, large new graving-docks have been opened. At Newport very large docks, to be called the Alexandra, are proposed to be constructed, at an estimated cost of 600,000*l.*

At Newhaven improvements have been effected in the harbour; and a grand scheme has been laid before the Harbour Commissioners for the construction of a harbour of refuge, docks, warehouses, &c., at a cost of 4,000,000*l.*; but however beneficial it might be to the town, the necessary funds, it may be feared, are hardly likely to be forthcoming. Nearer London, Dagenham Pond or Lake, created by the breach in the river-wall, famous in the history of embanking, and of late years a favourite resort for the cockney angler, is about to be converted into the Dagenham Thames Dock, chiefly for barges and craft of light burden.

A new pier has been opened at Bognor, 1,000 feet long, with a head 40 feet across. It is constructed chiefly of iron, on the screw principle; engineer, Mr. J. W. Wilson. At Lytham a pier has been constructed 914 feet long; engineer, Mr. E. Birch. The pier constructing at Tynemouth, under the direction of Mr. Walker, has been carried out a distance of 1,600 feet. The pier in course of construction at Weston-super-Mare, is making progress; as are also the harbour works at Brean Down. A new Waterloo Pier, Liverpool, to consist of a platform 1,500 feet long, carried on 375 iron columns, in triple tiers, screwed into timber piles, and tied by lattice girders, is proposed to be constructed at a cost of 20,000*l.*

JAMES THORNE.

ABSTRACTS OF IMPORTANT PUBLIC ACTS

PASSED IN THE SIXTH SESSION OF THE EIGHTEENTH PARLIAMENT OF GREAT BRITAIN AND IRELAND.

INDUSTRIAL EXHIBITIONS.

[28 Victoriæ, cap. 3.—March 27, 1865.]

An Act for the Protection of Inventions and Designs exhibited at certain Industrial Exhibitions in the United Kingdom.

The Board of Trade are empowered on the application of persons desirous of holding an Exhibition of objects of Arts and Industry, to grant a certificate for a definite place, and for a period not exceeding six months, during which the exhibition of new inventions or of new designs shall not prejudice the patent rights of the inventor, or the right to registration in the case of designs.

[Cap. 6, passed on the same day, repeats this Act almost verbally, applying it to the Dublin International Exhibition.]

ELECTION PETITIONS.

[28 Victoriæ, cap. 8.—April 7, 1865.]

An Act to amend the Election Petitions Act, 1848, in certain particulars.

Any Select Committee having occasion to apply to or report to the House, when the House be not sitting, "shall adjourn to the day immediately following that on which the House shall be appointed to meet for the despatch of business, unless that day shall happen to be a Sunday, Christmas Day, or Good Friday, and in that case the Committee shall adjourn to the next following day." In certain cases, the House may direct a Committee to adjourn for a reasonable period, and from time to time. If a Committee from any error, irregularity of proceeding, oversight, or other cause, shall become dissolved or unable to continue its sittings for any cause not provided for by the principal Act, a new Committee is to be struck within three days, unless the House otherwise order, or the House may order such dissolved Committee if the cause has not included the death or permanent illness of any of its members, to be revived, to re-assemble, and to act; its proceedings, regulated by all the provisions of the principal Act and this Act, to be as valid as if no such dissolution had taken place.

AFFIRMATIONS, SCOTLAND.

[28 Victoriæ, cap. 9.—April 7, 1865.]

An Act to allow Affirmations or Declarations to be made instead of Oaths, in all Civil and Criminal Proceedings in Scotland.

After repealing the 18 and 19 Vict., cap. 25, and the 26 and 27 Vict., cap. 85, relating to the same subject, it is enacted that "if any person called as a witness in any Court of Civil or Criminal Jurisdiction in Scotland, or required or desiring to make an affidavit or deposition in

the course of any proceeding, or in any matter, whether civil or criminal, shall refuse or be unwilling from alleged conscientious motives to be sworn, it shall be lawful for the Court, judge, or other presiding officer, or person qualified to take affidavits or depositions, upon being satisfied of the sincerity of such objection, to permit such person instead of being sworn to make his or her solemn affirmation or declaration, in the words following:—" I, A. B., do solemnly, sincerely, and truly affirm and declare, that the taking of any oath is, according to my religious belief, unlawful; and I do also solemnly, sincerely, and truly affirm and declare that," &c., which affirmation is to be of the same effect as on oath, and persons wilfully, falsely, or corruptly affirming, incur the penalties of wilful perjury.

COLONIAL NAVAL DEFENCE.

[28 Victoriæ, cap. 14.—April 7, 1865.]

An Act to make better Provision for the Naval Defence of the Colonies.

Power is given to the legislative authorities of the Colonies, with the approval of her Majesty in Council, to provide vessels of war, to raise and maintain seamen for them, to form a reserve force of volunteers, who are to form a part of the Royal Naval Reserve, to appoint commissioned, warrant, and other officers, to obtain from the Admiralty the services of such officers, and to enforce discipline among the men and officers subject to all enactments and regulations for the time being in force for the discipline of the Royal Navy. The Admiralty is empowered to accept the offer by the Colonial Government of any colonial vessel on such terms as may seem fit, with the men and officers; such vessel and crew while so serving to be deemed a part of the Royal Navy, and the services of volunteers and officers may be accepted in like manner. The Admiralty may by warrant authorize any officer of her Majesty's Navy, of the rank of captain, or of a higher rank, to exercise the powers of the Admiralty in relation to any colony; but nothing in this Act is to impose any charge on the imperial revenue, nor to affect any powers now vested in, or exerciseable by, the legislature or government of any colony.

EVIDENCE AND PRACTICE ON CRIMINAL TRIALS.

[28 Victoriæ, cap. 18.—May 9, 1865.]

An Act for amending the Law of Evidence and Practice on Criminal Trials.

By § 1 it is enacted that the provisions of § 2 shall apply to every trial for felony or misdemeanor commenced on or after July 1, 1865, and that those of §§ 3 to 8 shall apply to all Courts of Judicature, criminal or others, and to all persons having authority to hear, receive, and examine evidence. § 2 enacts that, if any prisoner or defendant be defended by counsel, but not otherwise, the judge is to ask at the close of the case for the prosecution whether it is intended to adduce evidence on the part of the accused; and if it be not intended, then the counsel for the prosecution is to address the Court a second time, summing up the evidence against the prisoner or prisoners; and upon every trial for felony or misdemeanor, the prisoner or defendant, or his counsel, may, if they think fit, open the case, then call and examine witnesses, and sum

up the evidence; the right of reply remaining as before. The party producing a witness (§ 3) may not impeach his credit by general evidence of bad character, but if the witness prove adverse he may be contradicted by other evidence; or, with leave of the judge, it may be proved that he had made at other times statements inconsistent with his present testimony; but he must previously be asked, whether or not he had made such a statement, and (§ 4) if he does not distinctly admit such statement, proof may be given that he did make it. A witness (§ 5) may be cross-examined as to previous statements made in writing, without such writing being shown to him, but if it is intended to contradict his evidence by such writing, his attention must be called to such parts as are to be used for such purpose; the judge may require the production of the writing for his inspection, and may use it as he thinks fit for the purposes of the trial. Proof may be given (§ 6) of the previous conviction of a witness for any felony or misdemeanor; if he denies it on being questioned, a certificate of the clerk of the court where the conviction took place (for which 5*s.* is to be paid) is to be sufficient evidence of the conviction; and (§ 7) it shall not be necessary to prove by attesting witnesses the validity of any instrument in which attestation is not necessary. Comparison of a disputed writing (§ 8) with any writing proved to be genuine to the satisfaction of the judge, and the evidence of witnesses, and the writings themselves, are to be submitted to the court and jury. Counsel (§ 9) in this Act is to include attorneys, where attorneys are allowed by law or practice to appear as advocates. The Act (§ 10) is not to apply to Scotland.

INCLOSURE.

[28 Victoriæ, cap. 20.—May 9, 1865.]

An Act to authorize the Inclosure of certain Lands in pursuance of a Report of the Inclosure Commissioners for England and Wales.

The first Inclosure Act of the Session includes the following fourteen places:— viz., *Buckinghamshire* — Fulmer Common. *Carmarthenshire*—Abernant; Llawrbante. *Cumberland*—Gamblesby Fell. *Herefordshire*—Maerbach Hill. *Lincolnshire*—Reepham Moor. *Surrey*—Epsom Common Fields. *Wiltshire*—Donhead St. Mary. *Westmorland*—Asby Winderwerth. *Worcestershire*—Broad Heath Common or Hanley Heath; Elmbridge; Elmley Lovett. *Yorkshire*—Helmsley Common; Trumfleet.

HERRING FISHERIES, SCOTLAND.

[28 Victoriæ, cap. 22.—May 9, 1865.]

An Act to amend the Acts relating to the Scottish Herring Fisheries.

The fourth section of the 23 and 24 Vict., cap. 92, is repealed, and instead it is enacted that in future it shall not be lawful to take or fish for herrings, or herring fry, from Feb. 1, to May 31 between Ardnamurchan, on the north, and the Mull of Galloway on the south of the west coast of Scotland; and the Commissioners of the British White Herring Fishery may extend the regulations and fix the periods within any other limits on the coast of Scotland after inquiry, as they shall think necessary; offenders against the regulations incur a penalty of not less than 5*l.*, nor more than 20*l.*, with forfeiture of nets, &c.

UNION OFFICERS' SUPERANNUATION, IRELAND.

[28 Victoriæ, cap. 26.—May 26, 1865.]

An Act to provide for Superannuation Allowances to Officers of Unions in Ireland.

With the consent of the Poor Law Commissioners the Guardians of Unions are empowered to grant allowances to officers whose whole time has been devoted to the service of the union, and who have become incapacitated; but the annual allowance is in no case to exceed two-thirds of the salary; such allowance not to be assignable nor chargeable with the debts or liabilities of the recipient; no grant to be made to any officer under sixty, nor unless he has served as an union officer for twenty years at least; and a month's notice in writing of the intended grant must be delivered to each Guardian before the grant is brought before the Board.

PRIVATE BILL COSTS.

[20 Victoriæ, cap. 27.—May 26, 1865.]

An Act for awarding Costs in certain cases of Private Bills.

When a Committee (§ 1) report "Preamble not proved," or have occasion to insert or modify any clause for the protection of a petitioner, or shall report that the petitioner or petitioners have been unreasonably or vexatiously subjected to expenses in defending his or their rights, they shall be entitled to recover costs, taxed by the taxing-master of the House, or the Committee may award a sum with the consent of the parties affected. If the Committee (§ 2) report unanimously that the preamble is proved and that the opposition is unfounded, the promoters of the Bill are to be entitled to costs; but no landowner who opposes a Bill affecting any portion of his property at his own risk, is to be liable for any costs in respect of his opposition. The costs (§ 3) are to be taxed; the powers of the taxing-master are defined by § 4; and the process of recovering them in England and Ireland by § 5; and in Scotland by § 6. When the amount of costs named by the Committee have been paid by any person, he has the right (§ 7) of recovering a proportion of the same from all other persons liable, according to the extent of the liability of each of them. When the Committee report the preamble not proved (§ 8), the promoters are to pay the costs out of the deposits. Promoters (§ 9) are defined to be "all persons whose names shall appear on such Bill as promoting the same," and if the Bill passes the Company are to be deemed the promoters. The title "Private Bill" (§ 10) is to include any Bill for a local and personal Act. By § 11 this Act comes into operation on November 1, 1865.

CUSTOMS AND INLAND REVENUE.

[28 Victoriæ, cap. 30.—May 26, 1865.]

An Act to grant certain Duties of Customs and Inland Revenues.

The Act itself is chiefly formal; the alterations being made in the schedules; but it provides that the Government may increase the number of Income Tax Commissioners to fourteen, and that no reduction or repayment of duty shall be made unless the profits of the year are proved to have been less than the average of the last three years. The first schedule reduces the duty on tea to 6*d.* per lb. until August 1, 1866;

the second imposes a stamp of 1*d.* on every policy of fire insurance issued after June 25, 1865, and upon any note of memorandum of the deposit of any money preparatory to the making out of such policy; and reduces the duty on the insurance to 1*s.* 6*d.* on every 100*l.* insured for a year, and after that rate for every fractional part of 100*l.* or fractional part of a year; the third schedule reduces the income tax to 4*d.* in the pound from profits arising from property, professions, trades, and offices; to 2*d.* for and in respect of the occupation of land, tenements, &c. (under schedule B of income tax), in England, and 1½*d.* in Scotland and Ireland. This is for one year ending on April 5, 1866.

VAGRANCY (IRELAND) AMENDMENT ACT.

[28 Victoriæ, cap. 33.—June 2, 1865.]

An Act to repeal the Act of the Parliament of Ireland. 6 Anne, cap. 11, for explaining and amending the several Acts against Tories, Robbers, and Rapparees.

This almost obsolete Act, which we notice on account of the oddness of the title, was directed against a species of vagrancy, carried on by persons indicated by the above curious names, which extorted by force or fear food and lodging from the dwellers in country districts. The present Act repeals it wholly, and declares it unlawful for any grand jury to present any person in Ireland as a vagrant. The common vagrancy still remains subject to the other laws in force against it.

METROPOLITAN HOUSELESS POOR.

[28 Victoriæ, cap. 34.—June 2, 1865.]

An Act to make the Metropolitan Houseless Poor Act perpetual.

The Poor Law Board are to cause wards and places of reception to be inspected not less than once in every four months, between 6 in the evening and 8 in the morning from October to March, and from 8 in the evening to 8 in the morning from April to September, and they may revoke or renew the certificates according to the results reported. The Board may allow a sum in gross for the cost and expenses, instead of a sum for each pauper as provided in the previous Act. "Any constable of the metropolitan police or of the police of the City of London, may personally conduct any destitute wayfarer, wanderer, or foundling, or other destitute person, not having committed or being charged with any offence punishable by law within the knowledge of such constable, to any wards or other places of reception approved of by the Poor Law Board under the said Act or this Act; and every such wayfarer, wanderer, or foundling, shall, if there be room in such wards or places of reception, be temporarily relieved therein." The wards are to be open at the hours mentioned for the inspection.

COUNTY VOTERS REGISTRATION.

[28 Victoriæ, cap. 36.—June 2, 1865.]

An Act to amend the Law relating to the Registration of County Voters, and to the Powers and Duties of Revising Barristers in certain cases.

The present Act is to be continued with, and be a part of, the Registration Act, 6 and 7 Vict. cap. 18, which is however amended as

far as regards county voters; and the new Act is to be cited (§ 1) as the County Voters Registration Act, 1865. The new Act provides that on or before June 10, in every year (§ 2) the clerk of the peace is to cause to be delivered to the overseers of the poor, his precept according to a specified form, with notices, list and copies of the register of the county voters for the parish or township, and the overseers (§ 3), on or before June 20, are to publish, by affixing such lists and notices on church and chapel doors, public places, &c., such list to remain for at least two Sundays; but to be removed before July 20, August 20, instead of the 25th as in former Acts, is to be the last day (§ 4) for giving notices of objections to overseers and to the person objected to; and Sept. 1 (§ 5) the last day for returning the lists with claims and objections to the clerk of the peace. The grounds of objection (§ 6) are to be specifically stated, and if the objection be grounded on more than one column of the registration list, each objection must be stated separately. No person objected to (§ 7) is to be required to give evidence before the revising barrister in support of his right otherwise than as such right is called in question by the objection; each separate ground of objection (§ 8) to be treated separately by the revising barrister, and for every ground of objection which may have been groundlessly or frivolously stated, he may award cost against the objector to the amount of at least 2*s.* 6*d.*, although the name may be expunged on some other ground. Notices of objection (§ 9) may be sent by post, pre-paid, as provided in § 100 of the previous Act. Persons whose names appear on the list of voters then in force (§ 10), but who have changed their residence, may make a declaration in a specified form, before a magistrate or any other authorized person, that he possessed the same qualification as when placed on the list, to be transmitted to the clerk of the peace on or before Sept. 14, who is to endorse the same with his initials and the date when received; such declarations to be open for perusal, without fee, at the clerk's office, between ten and four in the day, to be afterwards delivered to the revising barrister, who is to receive the same as evidence without further proof; persons falsely signing any such declarations (§ 11) to be deemed guilty of a misdemeanor, punishable by a fine or imprisonment for a term not exceeding a year; and the revising barrister is empowered to impound any such declaration. No court (§ 12) to be held by any revising barrister before Sept. 20. Every order for costs (§ 13) whether in revising the lists of county, city, or borough voters, in the case of an objection, to be made before proceeding to hear any other ground of objections; the sum ordered to be paid (§ 14) is not to exceed the sum of 5*l.* on any one vote. The revising barrister (§ 15) has power to remove persons from the court who interrupt the proceedings or refuse to obey his lawful order, and a police officer is to attend the court to carry his orders into effect. For the purpose of this Act (§ 17) the word "value" shall in the case of an occupying tenant mean amount of rental.

INCLOSURE ACT, No. 2.

[28 Victoriæ, cap. 39.—July 19, 1865.]

An Act to authorize the Inclosure of certain Lands, in pursuance of a Report of the Inclosure Commissioners for England and Wales.

This second Act of inclosure includes the following twenty-two places; viz., in *Buckinghamshire*—Chipping Wycombe. *Carmarthen*—

shire—Llangeler, Pemboyr, and Khredia. *Cumberland*—Bootle and Waberthwaite. *Derbyshire*—Bradwell. *Devonshire*—Blagrove Moor; Brockcomb Common. *Gloucestershire*—Stinchcombe. *Hampshire*—Anthill Common; Chidden Down; Hartley Wintney. *Lincolnshire*—Brumby Commons; Brumby Moors. *Merionethshire*—Bettws Gwerfil Goch. *Norfolk*—Roughton. *Nottinghamshire*—Selston. *Radnorshire*—Cefnllys. *Shropshire*—Gravenhunger Moss; Longville Common. *Sussex*—Nuthurst. *Westmoreland*—Longsleddale. *Wiltshire*—East Knoyle. *Yorkshire*—Addingham.

DISTRICT CHURCH TITHES.

[28 Victoriæ, cap. 42.—June 19, 1865.]

An Act for facilitating the Annexation of Tithes to District Churches.

The District Church Tithes Act (§ 1) by which title it is to be cited, defines (§ 2) a district church to be any chapel of ease or parochial chapel, or any district church or chapel having an assigned district, or the church of any parish formed under the new Parishes Acts, or any ancient or consolidated chapelry, or any parish or district formed under the Church Building Act, whether now existing or hereafter to be formed or built; and tithes are to include commutation rent charges, moduses, prescriptive payments, or land for which tithes may have been commuted. The vicar or rector of any living is empowered by § 3 to annex the tithes arising from the district assigned to a district church, compensation being made to the rector or vicar for the loss sustained out of the endowments of the district church, or by some other means; but no agreement to be valid on the part of the rector or vicar (§ 4) unless it be assented to by the archbishop or bishop of the diocese and the patron of the living; nor on the part of the incumbent of the district church, except with the consent of the patron, the approval of the Ecclesiastical Commissioners where the compensation is to be made out of the funds in their hands, or of the Governors of Queen Anne's Bounty if made by them. Agreements (§ 5) are to be in writing under the hand of the rector or vicar and the incumbent; and assents when required (§ 6) are to be testified by signing the agreement. Persons and corporate bodies (§ 7) are empowered to give land or goods for the purpose of purchasing tithes or to give tithes to be annexed to district churches. Agreements made in pursuance of this Act (§ 8) are to be carried into effect by order in council. Where tithes of any kind or amount, arising within the district, are satisfactorily transferred to the incumbent, or where any annuity is granted in lieu of such tithes by the Ecclesiastical Commissioners (§ 9), the said Commissioners may declare by instrument under their common seal such church to be a rectory or vicarage as circumstances may dictate, the same to be published in the *London Gazette*.

MARRIED WOMEN'S PROPERTY, IRELAND.

[28 Victoriæ, cap. 43.—June 19, 1865.]

An Act to Provide for the Security of Property of Married Women Separated from their Husbands, in Ireland.

A wife deserted by her husband in Ireland (§ 1) may apply to a police magistrate, or to the justices in petty sessions, or to a judge of the Court of Common Pleas, for an order to protect any money or property

she may acquire by her own lawful industry, or which she may become possessed of after such desertion, against her husband or his creditors, or any person claiming under him; and on satisfactory proof being given of the desertion, and that it was without reasonable cause, such order to be granted, and the earnings and property are to belong to the wife as if she were a *feme sole;* but a copy of every such order is to be lodged within ten days with the clerk of the peace of the county in which the wife resides, and the husband, or any one claiming under him, may apply to any judge of the same court by which the order was made for the discharge of the same; but the husband, or any one claiming under him, who shall seize any of the wife's property after notice of such order is liable, at the suit of the wife, to be adjudged to restore the specific property, and also for a sum equal to double the value of the property so seized. In every case of a divorce *a mensâ et thoro* (§ 2) the wife is to be considered as a *feme sole* from the date of the sentence, with regard to any property that she may acquire or may devolve upon her; and on her decease, if she die intestate, shall go as if her husband had been then dead; provided that if she again cohabit with her husband, such property as she may be entitled to shall then be held to her separate use, subject to any agreements in writing made between herself and her husband whilst separate. After divorce *a mensâ et thoro,* (§ 3) the wife is to be deemed a *feme sole,* as to property, purposes of contract, and suing or being sued in civil proceedings, the husband to be in no respects liable; except that in case of alimony having been decreed, and not regularly paid, he is liable for necessaries supplied for his wife's use. Every decree or order for alimony or costs (§ 4) may be enforced as if a judgment of one of the superior courts of law in Ireland. This Act (§ 5) applies to Ireland only.

COMMON LAW COURTS FEES.

[28 Victoriæ, cap. 45.—June 19, 1865.]

An Act to provide for the Collection, by means of Stamps, of Fees payable in the Superior Courts of Law at Westminster, and in the offices belonging thereto.

From and after Dec. 31, 1865 (or earlier, if notice be given in the *London Gazette* by the proper authorities), all fees (§ 1) payable in the Queen's Bench, Common Pleas, and Court of Exchequer, or their respective offices, or to their officers, are to be collected by stamps; such stamps (§ 2) to be impressed or adhesive as the Commissioners of the Treasury may direct. The Treasury with the concurrence of the Lord Chief Justice and Lord Chief Baron (§ 3), may issue rules for regulating the use of stamps under this Act, for the application to documents, for ensuring their proper cancellation, and for keeping accounts of such stamps. Documents not properly stamped (§ 4) are declared to be invalid; but if any such documents should inadvertently be received, the judge may, if he thinks fit, order the same to be stamped, and it shall then be as valid as if stamped in the first instance. The power is reserved (§ 5) to the Treasury or the judges of the several courts of altering or otherwise regulating the amount of the fees comprised in this Act, or of any salaries or other charges payable out of them, or of directing them to be paid into the Exchequer. The commissioners of Inland Revenue (§ 6) are to keep a separate account of all money received in respect of stamps under this Act and subject to the deduction of expenses incurred, and the payment of the salaries and

other charges, the money received is to be carried to, and form a part, of the Consolidated Fund; the accounts so kept (§ 7) for every year ending on March 31st, are to be laid before both Houses of Parliament. By § 8 a number of clauses in preceding Acts are repealed; and § 9 enacts that the Act may be cited in the Common Law Courts (Fees) Act, 1865.

DOGS REGULATION, IRELAND.

[Victoriæ, cap. 50.—June 18, 1865.]

An Act for regulating the Keeping of Dogs, and for the Protection of Sheep and other property from Dogs, in Ireland.

This Act is confined to Ireland, and provides that for every dog in possession of an owner before March 31, in each year, a licence must be taken from the clerk of the peace on a stamped paper, the stamp to be furnished by the Commissioners of Inland Revenue, for which licence a payment of 2s. is to be made annually for each dog so possessed; but if the dog be in the keeping of any one not the owner, out of the clerk of the peace's district in which the owner resides, the licence must be obtained in the district where the dog is kept. Occupiers of houses where the dog is kept are to be deemed the owners, unless they can show that the dog has been kept without their knowledge and against their consent, but where there are more occupiers than one in the house, let in separate apartments or lodgings, the occupier of that separate part where the dog has been permitted to live is to be liable for the licence duty. The petty sessions clerk is to keep a Registry of Dogs Licence Book, in which the issue of the licence, the date, the name and residence of the licence holder, and a description of the dog or dogs is to be entered, open to the inspection of the registrar and his clerks, and to every justice of the peace, county inspector, sub-inspector, or other constable, and to the local police. The clerk is to certify on the back of every licence that it has been so registered, and for such certificate a sixpenny petty sessions stamp is to be paid by the licence holder. If a dog be transferred by sale or gift, the licence for the remainder of the year may be transferred on obtaining a new certificate of registry on payment of a sixpenny stamp. A list of licences to be printed and posted on or before April 15 of each year, and the petty sessions clerk is to account for the fees with the registrar half-yearly. The infringement of these regulations subjects the offender, for not having taken out a licence, to a penalty not exceeding 2*l.*, and for a second offence, in addition, to a penalty not exceeding 1*s.* a day for every day in which it has been neglected; for refusing to produce the licence when demanded by a constituted authority, the penalty is not to exceed 5*s.* The penalties in all cases to be recovered in a summary way.

PHEASANT SHOOTING, IRELAND.

[28 and 29 Victoriæ, cap. 54.—June 29, 1865.]

An Act to Alter the Days between which Pheasants may not be Killed in Ireland.

The time of shooting is made the same as in England: *i.e.*, from Oct. 1 to March 31. The previous time of commencement had been Sept. 1. All the other provisions remain as before.

TRESPASS, SCOTLAND.

[28 and 29 Victoriæ, cap. 56.—June 29, 1865.]

An Act to provide for the better Prevention of Trespass in Scotland.

Persons encamping or lodging on any land, being private property without the consent of the owner or occupier, or encamping or lighting a fire on or near any private road or cultivated land or near any plantation, without the like consent, are to be deemed trespassers, may be apprehended, and if convicted before a magistrate, are liable to a penalty not exceeding 20*s.* or imprisonment for any period not exceeding fourteen days, and for a second or any subsequent offence, to a penalty not exceeding 40*s.*, or imprisonment not exceeding twenty-one days. The prosecutions are to be raised at the instance of the Procurator-Fiscal, and are to be decided summarily. The Act is limited to Scotland.

DOGS, ENGLAND.

[28 and 29 Victoriæ, cap. 60.—June 29, 1865.]

An Act to render owners of Dogs in England and Wales liable for injuries to Cattle and Sheep.

By § 1 the owner of every dog is made liable in damages for injury done to any cattle or sheep by his dog; and it shall not be necessary for the party seeking such damages to show a previous mischievous propensity in such dog, or the owner's knowledge of such propensity; or that there was neglect on the part of the owner. If the damage be under 5*l.* the amount is recoverable in a summary way before justices; and if above 5*l.*, in any court of competent jurisdiction. By § 2 the occupier of any house or premises where the dog is permitted to live to be deemed the owner; unless he prove that he was not the owner, and that the dog was on his premises without his sanction or knowledge. If the house or premises be let in separate apartments, the occupier of the particular part where the dog was permitted to live to be deemed the owner. By § 3 the Act is limited to England and Wales.

CHURCHES AND CHAPELS EXEMPTION, SCOTLAND.

[28 and 29 Victoriæ, cap. 62.—June 29, 1865.]

An Act to provide for the Exemption of Churches and Chapels in Scotland from Poor Rates.

The single clause of this Act provides that "no person shall be rated for or be liable to be rated for or to pay any poor-rates for or in respect of any church, chapel, meeting-house, or premises in Scotland exclusively appropriated to public religious worship," nor to pay any such rates "because such church, chapel, meeting-house, or other premises or any room belonging thereto, or any part thereof, may be used for Sunday or Infant Schools, or for the charitable education of the poor."

MALT DUTY.

[28 and 29 Victoriæ, cap. 66.—June 29, 1865.]

An Act to allow the charging of the Excise Duty on Malt according to the weight of Grain used.

This Act came into effect (§ 1) on Sept. 7, 1865. Any maltster (§ 2) desiring to have the duty payable on malt made by him charged according to the weight of the corn or grain used in the making of such malt, is to give notice in writing to the officer of excise under whose survey he shall be, and on complying with the provisions of the Act he is to be entitled to have the duty charged accordingly in respect of any corn or grain which he shall wet or steep at any time, and from time to time, after the expiration of four clear days from the time of giving such notice. It is provided that if the maltster shall not begin to make or shall discontinue making malt to be charged with duty under the provisions of this Act for the space of one calendar month, the notice given by him shall be of no further avail, and he shall not be entitled to the privilege of having the duty on malt made by him charged under the provisions of this Act until after he shall have given a fresh notice. The maltster (§ 3) is to provide a cover to the cisterns in which the grain is placed, which, after it has been locked or fastened by the excise officer, must not be opened during such time as the Commissioners of Inland Revenue may direct. Forty-eight hours notice (§ 4) is to be given of the intentions to make malt, the notice to specify the precise hour when the grain is to be placed in the cistern, such hour not to be later than 12 at noon of the day preceding that on which it is intended to steep the corn, and if not steeped within three hours or placed in the cisterns within one hour after the specified time, the notice to be null and void. A signed declaration is to be given (§ 5) to the excise officer of the true weight per bushel of the grain intended to be steeped, and no other grain is to be added or substituted after it has been taken account of by the excise officer. After being placed in the cistern (§ 6) the weight of the corn is to be ascertained by any excise officer taking a bushel as a sample, before any water has been added, the fraction of a pound, if amounting to 8 ounces, to be reckoned as a pound; if under 8 ounces, no account to be taken; and the standard weight of a bushel (§ 7) is to be 53 pounds, and the maltster (§ 8) is to provide scales and weights and a bushel measure. Any excise officer of superior rank to a supervisor (§ 9) may weigh any corn or grain in the malthouse of any maltster making malt under this Act, and the maltster or his servants are bound to render assistance in so doing. If after the grain is placed in the cistern, and before wetting (§ 10) it shall be found by any excise officer to exceed the declared weight in a greater proportion than 2 pounds per bushel, the maltster incurs a penalty of 100*l.* After the grain has been kept covered with water in the cisterns for fifty hours (§ 11) the maltster at the expiration of ninety hours may lawfully water or sprinkle it, giving twenty-four hours' notice to the excise officer of his intention. The penalties for breaches of the regulations of this Act (§ 12) are of 100*l.* for each offence, in addition to the penalties under other Acts now in force. The drawback of duty on exportation (§ 13) is only allowed on malt weighing not less than 36 pounds or more than 44 pounds per bushel; the drawback to be paid upon every 40 pounds for all not exceeding that weight per bushel, and if above 40 pounds, then to be paid according to measure as heretofore, and subject in both cases to the

deduction of 7½ per cent. as directed by § 30 of the 23 and 24 Vict. cap. 113. By § 14 the clauses of previous Acts which are modified by this are repealed; § 15 enacts that the provisions of other Malt Acts not so repealed are to remain in force; and § 16 declares the continuance of this Act to be for four years and till the end of the then next session of Parliament.

PARSONAGES.

[28 and 29 Victoriæ, cap. 69.—June 29, 1865.]

An Act further to amend and render more effectual the Law for providing fit Houses for the Beneficed Clergy, and for other purposes.

Incumbents are empowered to borrow (§ 1) on the security of the glebe, tithes, &c., of their benefices any sum not less than 100*l.*, and not more than three years' net income, for the purposes of the former Act—namely, for building, repairing, &c., house or residence; for the purpose of purchasing any lands or hereditaments, not exceeding 12 acres, contiguous to or desirable to be used with the parsonage-house or glebe; for the purpose of building any offices, stabling or out-buildings, or fences necessary for the occupation or protection of the parsonage-house; for the purpose of restoring, rebuilding, or repairing the fabric of the chancel of the church; for the purpose of building, improving, enlarging, or purchasing any farm-house, or farm-buildings, or labourers' dwelling-houses belonging to or desirable to be acquired for any farm or lands appertaining to the benefice; out of the sum to be borrowed the charges and expenses of the architect or surveyor and the costs of the mortgage deed may be paid. The conditions for repayment remain as in the former Acts; the mortgage is for 35 years, and the sum borrowed is to be repaid in 30 annual instalments, with the accruing interest. The Act also empowers the Governors of Queen Anne's Bounty (§ 3) to sell all houses, lands, tithes, or other property given them for the general purpose of augmenting the maintenance of the poor clergy, the money thence arising to be applied according to the regulations of the said Governors. The powers of previous Acts (§ 3) are extended to the present one. Corporations and persons under disability or incapacity, are empowered (§ 4) under common law or by guardians, trustees, &c., to convey, either by voluntary gift or sale, messuages or sites to be used for parsonages; but if by gift the quantity of land may not exceed an acre; in case of sale the receipt of the sale to be a sufficient discharge; but in case of a sale by a tenant for life for more than 20*l.* the purchase money to be paid to two trustees, and applied in the manner provided by § 71 of the Lands Clauses Consolidation Act, 1845. To facilitate business, five of the Governors of Queen Anne's Bounty, three of whom at least must be archbishops or bishops are to form a quorum, and a majority is to decide all questions of business.

NAVY AND MARINES' WILLS.

[28 and 29 Victoriæ, cap. 72.—June 29, 1865.]

An Act to make better Provision respecting Wills of Seamen and Marines of the Royal Navy and Marines.

After the commencement of this Act, which is to take effect not later than Jan. 1, 1866, unless an order in council shall defer the time in respect to places out of the United Kingdom, wills made previously

to entering her Majesty's service, are not valid in respect to any wages, prize money, or other allowance payable by or on account of the Admiralty; wills made while serving are declared invalid if combined with a power of attorney; and wills made while serving or after having ceased to serve are not to pass wages, prize money, &c., unless the will be in writing executed with the formalities required in the case of persons not being soldiers or seamen; 2. That the will, if made on board one of her Majesty's ships, be signed by two attesting witnesses, of whom one is a commissioned officer, chaplain, or warrant or subordinate officer in her Majesty's service; 3. Where the will is made elsewhere than on board ship, one of the two attesting witnesses to be some one of the above-named officers, or the governor, agent, physician, surgeon, or chaplain of a naval hospital at home or abroad, or a magistrate, or the incumbent, curate, or minister of a church or place of worship in the parish where the will is executed, or a British consular officer, or an officer of customs, or a notary public. For a will made by any seaman or marine while a prisoner of war, his own signature and the attestation of one witness, belonging to one of the above-named classes, is sufficient; and the Admiralty have the power to make payments under a will not conforming to the Act if they are of opinion, under the circumstances of the death of the testator, that the requirement may be dispensed with.

SEWAGE UTILIZATION.

[28 and 29 Victoriæ, cap. 75.—June 29, 1865.]

An Act for facilitating the more useful Application of Sewage in Great Britain and Ireland.

This Act does not apply to the metropolis or any place governed under the Public Health Act, 1848, and the Local Government Act, 1858. For other places the Sewer Authorities are defined to be in England, in boroughs, the mayor, aldermen, and council; in towns, the persons entrusted with cleansing, paving, &c.; in parishes, the vestry; in Scotland, the town council, the police commissioners or trustees, or the parochial board; in Ireland, the mayors, aldermen and burgesses of corporate towns, the town commissioners or other governing body in towns, and the board of guardians in towns or villages not included in the above descriptions; the funds are provided for from various rates. Powers are given to the Sewer Authorities to construct the sewers necessary to keep their district properly cleansed and drained, they are to pay all the expense incurred out of the rates provided for the purpose, or may borrow money on the security of such rates, subject to the conditions imposed on Local Boards, and the Public Works Loan Commissioners may lend money on such security. Compensation for damage done is to be paid out of the rates; and lands may be taken under the powers conferred by § 75 of the Local Government Act, 1858. Two or more Sewer Authorities may combine to execute works for the benefit of their districts. A Sewer Authority, with the sanction of the Attorney-General of England or Ireland, or the Lord Advocate of Scotland, may take proceeding either in its own name, or in the name of any other person (with his consent), to protect any watercourses within its jurisdiction from pollutions arising from sewage; the costs, including costs that may be awarded to the defendant, to be deemed expenses properly incurred; but no Sewer Authority shall form any sewer to drain into a stream or watercourse. The Sewer Authority of any place may agree with any person or body of persons, for the purpose of utilizing the sewage, as to the works to be made, the parties who are to bear the cost, and the sum

of money, if any, to be paid for the sewage supplied, but no contract to be for a longer term than twenty years. In Ireland the Board of Works are to have the like powers in respect of sewage with the Secretary of State in England and Scotland.

PUBLIC HOUSE CLOSING ACT AMENDMENT.

[28 and 29 Victoriæ, cap. 77.—June 29, 1865.]

An Act to amend the Act 27 and 28 Vict., cap. 64, commonly called the Public House Closing Act, 1864.

This Act, to be cited as the Public House Closing Act, 1865, is to be deemed a part of, and construed with, the previous Act of 1864. The licensing justices are now empowered (§ 2), upon the production of evidence showing the necessity or desirableness of accommodating any considerable number of persons attending any public market or following any lawful trade or calling, on granting or renewing a licence to any person in the immediate neighbourhood, to exempt him from the provisions of the preceding Act, as to the hours between 2 and 4 a.m.), during such days, times, and hours as shall be specified in such licence, "provided that a printed notice, stating the days and special hours during which, and the class of persons for whom, the house is open under such licence, shall be fixed in a conspicuous position outside the house." The justices may (§ 3), from time to time, either withdraw, or vary, or amend, the said licence as they may deem expedient. This Act (§ 4) is to be in force in such districts under the operation of the Public Health Act or the Local Government Act as may adopt the same; but so much of § 8 of the Act of 1864 as defines a Local Authority to be a Commissioner, Superintendent, or other chief officer of police, is repealed, and the Local Authority in any district, city, or town, where petty sessions are held (except in the metropolitan police district), shall be two justices of the peace sitting in petty session, and elsewhere two justices acting for the district.

UNION CHARGEABILITY.

[28 and 29 Victoriæ, cap. 79.—June 29, 1865.]

*An Act to provide for the better Distribution of the Charge for the Relief of the Poor in Unions.**

From and after March 25, 1866, so much of § 26 of the 4 and 5 Wm. IV. cap. 76, as requires parishes in unions formed under that Act to defray the expenses of their own poor, is repealed by § 1, and thenceforth the cost of relief and the expense of the burial of any of the poor under the direction of the guardians, whether relieved in or out of the workhouse, and all charges for vaccination and registration fees, shall be charged upon the common fund of the union. Any pauper relieved in any such union (§ 2) not having a settlement therein, may be removed by the guardians under an order of removal addressed to the guardians of the union, or the overseers of the parish, as the case may require, in which such pauper shall be settled, who is to be received, as in the case of orders of removals heretofore obtained by overseers with such

* This Act, with Notes by W. G. Lumley, has been published by Knight & Co., 90, Fleet Street, with the forms and orders required for carrying it into execution.

modifications as may be necessary to meet the circumstances of the chargeability to the union instead of the parish. Guardians of unions (§ 3) may defend or appeal against any such orders of removal as in the case of orders heretofore obtained or appealed against by overseers, but pending appeals not to be affected by this Act. Notices, statements, or other documents (§ 4) required to be given by the guardians in respect of any removal, to be deemed to be sufficiently authenticated if signed by their clerk in their name; and shall be deemed to be duly served upon the guardians to whom it is addressed, if delivered personally to their clerk, or left at his office, or sent to him through the post. In order the better to obtain orders of removal (§ 5), the guardians may order the overseers, or any other person having the custody of books, accounts, or papers, belonging to any parish of the union, to produce the same to the board, or to their clerk, or other person appointed by them, and allow copies or extracts to be taken from them, without fee or reward. Where the guardians of any union or parish (§ 6) are satisfied as to the settlement of a pauper, such pauper may be removed or received under the common seal of the guardians without an order of removal. Any pauper removed from an union under an order, who shall again become chargeable to it within a twelvemonth, is to be deemed an idle and disorderly person, and punished as such under the Act of 5 Geo. IV., cap. 83, unless such pauper has received the consent of the guardians for his return. From and after March 25, 1866, the three years' residence required for settlement by § 1 of the 24 and 25 Vict., cap. 55, is reduced by § 8 to one year. Costs and expenses, lawfully incurred (§ 9), are in all cases to be charged to the common funds. In case of any poor person dying in the workhouse (§ 10), the workhouse shall be considered as situated in the parish where such poor person resided last before his removal to the workhouse. The Poor Law Board (§ 11) are to make all such orders as may be requisite to render the provisions of this Act applicable to the proceedings and accounts of guardians and overseers. The guardians (§ 12) are to distribute the charges upon the common fund at the close of every half-year, in the proportions according to which the orders for the contributions to the common fund were made upon the several parishes at the commencement of the half-year, notwithstanding any change in the valuation made during such period. Except as herein provided (§ 13), no alteration shall be made in respect of settlement. Any union or incorporation under local Acts, where the cost of the relief of the poor is not borne by a common fund, may (§ 14), on a resolution to that effect, carried by a majority at two successive meetings, apply to the Poor Law Board to be included in this Act, and upon the consent of the Board being given under its seal, and subject to such terms and conditions as that Board may deem requisite, be so included from such time as the Board may fix; such consent, so signified, to be evidence that such application was in all respects duly made; and when this Act has been adopted (§ 15), and the adoption legally brought into operation, the body having the management of the relief of the poor, may, from time to time, make calls in advance for money from the overseers of the several parishes, on the basis of an equal pound rate, on the annual value of the property in each parish rateable to the poor. The terms (§ 16) are to be interpreted in the manner prescribed by the 4 and 5 Wm. IV., cap. 76, and the subsequent Acts amending the same, and the provisions relating to poor persons rendered chargeable, are to apply to all the poor hereby rendered chargeable on the common fund. The Act is to be cited (§ 17) as the Union Chargeability Act, 1865.

SMALL BENEFICES (IRELAND) ACT, 1860, AMENDMENT.

[28 and 29 Victoriæ, cap. 82.—July 5, 1865.]

An Act to amend the Endowment and Augmentation of small Benefices (Ireland) Act, 1860.

The short title of this Act (§ 1) is the Endowment and Augmentation of Small Benefices Act (Ireland) Amendment Act, 1865; and is to constitute one Act with the 23 and 24 Vict., cap. 72; and in the construction of this Act (§ 2) the words "church offices" shall mean marriages, burials, and churchings. The bishop of the diocese (§ 3) may, by an instrument under his hand and seal, to be filed in the registry, assign the right of patronage of any benefice formed out of one or more parishes, either in perpetuity or for one or more nominations to any body, or person, or his or their nominees, in consideration of money or property of not less value than 700*l.*, towards the permanent endowment of such benefice, or towards providing a church or chapel for the use of the inhabitants of the district; and until such assignment shall be made, and subject to them when made, the patronage and nomination shall be dealt with according to the provisions of the 14 and 15 Vict., cap. 72, and the 23 and 24 Vict., cap. 72; and the same provisions (§ 4) are to extend to contracts for the like purpose. The contract (§ 5) is to be by deed, entered in the registry of the diocese and enrolled in the Rolls Office of Ireland, and shall be binding upon the parties to it, their heirs, executors, and successors in office; and upon the provisions of the contract being complied with, the patronage shall vest in the nominees of the person or persons endowing the same; but unless the endowment of the benefice be fully performed within six years from the date of the contract, it is to be deemed null and void. When a benefice has been endowed (§ 6), the incumbent of such benefice is to have the exclusive care of souls within the same; and where formed out of any other parish or place, shall not be in any wise subject to the control or interference of the incumbent of the mother church of the parish or place out of which it may have been taken. The money given at the offertory (§ 7) is to be applied in the same manner as in any ancient parish church. The accustomed fees for church offices (§ 8) are to be paid to the incumbent; but where (§ 9) the benefice has been formed out of another parish, they are to be paid over to the incumbent of the mother church during his incumbency, until after the first avoidance of the incumbency subsequent to the formation of the benefice, when the fees are to belong to the incumbent of the benefice; and the bishop of the diocese (§ 10), where the benefice has been formed out of two or more parishes, is to assign by writing under his hand what proportion of the fees shall be divided among the incumbents of such parishes.

LOCOMOTIVES ON ROADS.

[28 and 29 Victoriæ, cap. 83.—July 5, 1865.]

An Act for further regulating the use of Locomotives on Turnpike and other roads for Agricultural and other purposes.

On Sept. 1, 1865, this Act (§ 1) came into operation, and is to continue till Sept. 1, 1868; and by § 2 it partially repeals the Locomotive Act of the 24 and 25 Vict., cap. 70. At least three persons (§ 3) are to be employed to drive or conduct a locomotive; and if more than two waggons or carriages are attached, an additional person is to be employed to take charge of such carriages; one of the persons is to precede such locomotive while in motion, on foot, by not less than 60

yards, displaying a red flag, and warn drivers of the approach; and he is to signal the driver of the locomotive when necessary to stop; and he is to assist horses and carriages drawn by horses in passing the same. The whistle is not to be sounded nor steam to blow off when the locomotive is on the road. The locomotive is to be stopped when required; it is to have two efficient lights. On default of the regulations a penalty of 10*l.* can be imposed. A locomotive (§ 4) is not to go at more than four miles an hour along a public highway, or at a greater speed than two miles through a city, town, or village. And the penalty for contravening this regulation is 10*l.* Subject to the provisions of this Act (§ 5) locomotives not exceeding 9ft. in width, or 14 tons in weight, and having wheels constructed according to the Act of 1861, may be used upon any turnpike road or public highway; but locomotives exceeding the above dimensions or weight are not to be used on any such roads, except subject to the provisions contained in the third section of the said Act of 1861, as to locomotives exceeding 7ft. in width and 12 tons in weight. The restrictions as to the use of steam-engines within 25 yards of any road, unless within some building or behind some wall, are not to apply (§ 6) to locomotives used for ploughing, provided a person be stationed in the road to signal the driver when to stop, and to assist horses, carriages, &c. The name and residence (§ 7) of the owner to be affixed in a conspicuous manner on the locomotive, under a penalty not exceeding 40*s.* for neglect. The Lord Mayor and Aldermen of London (§ 8), the Metropolitan Board of Works, and the councils of boroughs in England, the population of which at the last census exceeded 5,000, and in Scotland the town council of boroughs having a population of 10,000, or other local authorities, have the power to regulate the hours and speed at which locomotives shall pass through the city or place subject to their jurisdictions, under a penalty not exceeding 10*l.* for disobedience; every such order to be made in writing, affixed to some public place, and advertised in some local newspaper. In Ireland (§ 9) the county surveyor is to be deemed the conservator of the roads of the county, and any damage done by a locomotive is to be recoverable by proceedings in his name on behalf of the county, if not exceeding 10*l.*, in a summary way, and if over 10*l.* in the Civil Bill Court. Penalties under this Act in Ireland (§ 10) are to be recoverable before the justices in petty sessions. Nothing in this Act contained (§ 11) to affect the provisions of the Thames Embankment Act, 1862; nor (§ 12) to authorize any person to use a locomotive so constructed or used as to be a nuisance at common law, nor to affect the right of any person to recover damages for any injury sustained in consequence of the use of a locomotive. This Act (§ 13) is to be cited as the Locomotive Act, 1865, and to be construed with the Locomotive Act, 1861, as one Act.

PARTNERSHIP AMENDMENT.

[28 and 29 Victoriæ, cap. 86.—July 5, 1865.]

An Act to amend the Law of Partnership.

The advance of money (§ 1) by way of loan to a person engaged or about to engage in any trade or undertaking upon a contract in writing with such person that the lender shall receive a rate of interest varying with the profits, or shall receive a share of the profits arising from carrying on such trade or undertaking, shall not of itself constitute the lender a partner with the person or persons carrying on such trade or undertaking, or render him responsible as such. The remuneration of agents by share (§ 2) is not to constitute a partnership. No person (§ 3)

being the widow or child of the deceased partner of a trader, and receiving by way of annuity a portion of the profits made by such trader in his business, shall, by reason only of such receipt, be deemed to be a partner of, or to be subject to any liabilities incurred by, such trader. No person (§ 4) receiving by way of annuity or otherwise a portion of the profits in consideration of the sale of a goodwill is to be deemed a partner. In the event of a trader (§ 5) being adjudged a bankrupt, or taking the benefit of an Act for the relief of insolvent debtors, or entering into an arrangement to pay his creditors less than 20s. in the pound, or dying in insolvent circumstances, the lender of any such loan shall not be entitled to recover any portion of his principal or of the profits or interest payable in respect of such loan, nor shall any such vendor of a goodwill be entitled to recover any such profits, until the claims of the other creditors of the trader for valuable consideration in money or money's worth have been satisfied. In construing this Act (§ 6) the word person is to mean a firm, joint-stock company, or corporation.

RECORD OF TITLE, IRELAND.

[28 and 29 Victoriæ, cap. 88.—July 5, 1865.]

An Act for the recording of Titles to Land in Ireland.

The object of this long Act, which is to a considerable extent technical, is to provide that titles conferred by the Landed Estates Court, in Ireland, "should be kept free from complication, so that subsequent dealings with the estates held under such titles may be more simple and economical." For this purpose a Record of Title Office is to be established under the control and direction of the Landed Estates Court, in which any person obtaining a conveyance of land, or lease, or any interest therein, may have the same entered, and the recorded owners are to be entitled to the estates mentioned on the record, subject to any qualifications therein stated; and provides the form by which recorded estates are to be transferred, &c. The record officer is to deliver, on the application of the recorded owner, a certificate, with a copy of the description of the estate and particulars of the incumbrances, leases, and other matters relating thereto; and the recorded owner of any charge or incumbrance may also demand a certificate of such charge or incumbrance. The jurisdiction of the Courts are to remain as heretofore in cases of actual fraud.

GREENWICH HOSPITAL.

[28 and 29 Victoriæ, cap. 89.—July 5, 1865.]

An Act to provide for the better Government of Greenwich Hospital, and the more beneficial Application of the Revenues thereof.

The Greenwich Hospital Act, 1865, the short title by which the Act may be cited, provides for its coming into operation immediately after Sept. 30, 1865; and having partially repealed the 10 Geo. IV., cap. 25, and the 26 and 27 Vict., cap. 67, enacts that (§ 5) "it shall be lawful for her Majesty in Council from time to time, by order in council, to appoint such pensions as seem fit to officers, non-commissioned officers, and men of the royal navy and marines, and seamen of the merchant service, for the time being entitled to the benefits of Greenwich Hospital, to be enjoyed by them so long only as they are not on the establishment or inmates of Greenwich Hospital, but in addition to any half-pay, pension, or other allowance coming to them otherwise than under any such order in council,—and to prescribe the conditions on which such pensions are

to be held,—and to appoint such gratuities as seem fit to widows of non-commissioned officers and men of the royal navy and marines killed or drowned in the service of the crown;" and (§ 6), the Admiralty "may from time to time appoint to any non-commissioned officers and men of the royal navy and marines who were on April 6, 1865, inmates of Greenwich Hospital, and who being inmates thereof after the commencement of this Act are willing to cease to be inmates thereof, such allowances as seem fit, not exceeding the rates of money allowance of which they were in receipt as inmates of the Hospital, to be enjoyed by them respectively in addition to any pensions appointed to them under any such order in council." Any assignment or sale of such pension (§ 8), unless under the authority of this Act, is declared to be void. On the commencement of this Act the offices of the Commissioners, and of the Governor and Lieutenant-Governor are abolished, and the Lords of the Admiralty may remove all other officers, clerks, or persons employed in connection with the Hospital, as they may deem expedient in the due execution of this Act; but annuities are to be provided for persons so removed. The present Governor and Lieutenant-Governor are to retain their titles, residences in the Hospital, and the emoluments incident thereto; but on the death of the Governor, the Admiralty are to appoint an officer of not lower rank than vice-admiral to be Visitor and Governor, with such a salary as they may deem fitting, and assign to him the duties as Visitor, but so as not to authorize him to interfere with the ordinary government of the Hospital or the School thereof. This is vested in the Admiralty, "including the authority to establish from time to time regulations for the admission of inmates into the Hospital and of children into the Schools," such regulations not to have effect unless they are approved by her Majesty in Council; "and the Admiralty shall from time to time continue or appoint such officers, clerks, and servants for the purposes of the Hospital and Schools as seem fit, and may (subject to the approval of her Majesty in Council) fix the salaries of such officers and clerks, and may regulate the wages of such servants, and may from time to time remove any of the officers, clerks, and servants, and appoint others in their stead." There is to be appointed a Comptroller of the Greenwich Hospital estates, who shall have the general superintendence of the lands and other property. All payments are to be made in the first instance out of grants made by Parliament, the rents, dividends, &c., are to be paid into the Bank of England" to the Greenwich Hospital account, and the paymaster is yearly to pay from the Greenwich Hospital income account into the receipt of her Majesty's Exchequer a sum to be carried to and to form part of the Consolidated Fund of the United Kingdom, equal to the amount certified by such certificate to have been expended in the year, together with a sum equal to 15*l.* per. head on the number of men by which the average number of the inmates of Greenwich Hospital falls short of 1400." The remainder of the Act is occupied with regulations for the management of the property of the Hospital, keeping of accounts, &c.

FIRE BRIGADE, METROPOLIS.

[28 and 29 Victoriæ, cap. 90.—July 5, 1865.]

An Act for the Establishment of a Fire Brigade within the Metropolis.

The object of the statute, as declared by the preamble, is to make further provision for the protection of life and property from fire within the metropolis. The metropolis is to include the City of London, and all places within the jurisdiction of the Metropolitan

Board of Works. On and after January 1, 1866, the duty of extinguishing fires and protecting life and property in case of fire within the metropolis is to be intrusted to the Metropolitan Board of Works, and for that purpose the Board may provide and maintain an efficient force of firemen, and provide for their equipment, and for the efficient performance of their duty. Buildings and land may be purchased, and the plant of existing fire-offices is to be transferred to the Board. The force is to be called "The Metropolitan Fire Brigade," and to be under the command of a chief officer. Salaries are to be paid, and regulations made, and compensation given to parish officers. The Board are also empowered to purchase fire-escapes, or they may contribute to any existing societies that provide fire-escapes. On occasion of a fire, the chief officer in charge of the brigade may take the command of any volunteer fire brigade, or other persons placing their services at his disposal; he may order the removal of persons interfering with his operations, and take any measures that appear expedient for the protection of life and property, with power to pull down premises, or to cause water to be shut off from mains or pipes; any damage occasioned to be deemed damaged by fire within the meaning of any policy of insurance; and the police are required to assist the brigade in the execution of their duties, closing any street in or near which a fire is burning, or removing persons interfering with the operations of the brigade. The various Insurance Companies are to contribute yearly at the rate of 35*l.* for every million of property insured in the metropolis, the payments to be made quarterly; the secretaries of companies to make returns at stated times under a penalty not exceeding 5*l.* for every day of default. The Treasury are to pay yearly such sums as Parliament may grant, not exceeding 10,000*l.* in any one year. For the remainder of the expenses the Board are to issue precepts to the overseers of the poor to pay over the amount stated therein within forty days; the overseers are to pay the same by levying the amount as part of the rate for the relief of the poor; but such rate not to be in any one year more than one halfpenny in the pound. The Board are empowered to borrow any sum not exceeding 40,000*l.* on the security of such rates, and the money received is to be employed in liquidating and paying the interest of such loans. A penalty not exceeding 20*s.* is imposed on the occupier of a house in which a chimney shall take fire; but if caused by the neglect or wilful default of any other person, the occupier may recover the whole or any part of the penalty by summary process. The Insurance Companies may establish a force for the purpose of saving property, and the fire brigade, subject to the regulations of the Board, are to assist them, and deliver to their custody property saved from the fire without making any charge. The brigade, when occasion requires, may be permitted by the Board to attend fires beyond the limits of the metropolis, with their engines, escapes, and other implements; the expense thereby incurred to be defrayed jointly by the owners and occupiers of the property where the fire has occured; in case of difference, the amount to be summarily determined by two justices, and in default of payment to be recovered by summary process. Every morning (except Sunday), the brigade to send information of all fires to the insurance offices. All powers hitherto vested in local bodies as respects fire-plugs in the metropolis, are in future to be exercised by the Board; and every water company is to provide, at the expense of the Board, plugs for the supply of water at such places, of such dimensions, and in such form, as the Board may require; the fire

brigade to be at liberty to make such use of them as may be necessary; the company depositing keys at such places as the Board may appoint, and a public notice may be placed on any house or building showing the situation of the fire-plug. There are clauses partially repealing some previous Acts, and owner is defined to be the person receiving the rack-rent of any premises, whether on his own account or as agent or trustee for another.

COMPTROLLER OF THE EXCHEQUER.

[28 and 29 Victoriæ, cap. 93.—July 5, 1865.]

An Act to consolidate the offices of Comptroller General of the Exchequer and Chairman of the Commissioners for Auditing the Public Accounts; and other purposes.

On the occurrence of the next vacancy (§ 1) the Chairman of the Commissioners of Public Accounts is to become the Comptroller of the Exchequer in addition to his other duties. [This has already taken place by the resignation of the comptrollership by Lord Monteagle]. The Commissioners of the Treasury (§ 2) are empowered to abolish the office of Clerk of the Exchequer, making provision for the performance of the statutable duties of the office. The annual salary for the joint offices of Comptroller of the Exchequer and Chairman of the Audit Board is to be 2,000*l.*

CARRIERS ACT AMENDMENT.

[28 and 29 Victoriæ, cap. 94.—July 5, 1865.]

This short Act, which came into operation on Sept. 30, 1865, merely provides that in the previous Act exempting carriers from the payment for damages on certain articles, unless the value and contents of the package containing them be declared, the term lace is not to be understood as applying to machine-made lace.

SUGAR DUTIES AND DRAWBACKS.

[28 and 29 Victoriæ, cap. 95.—July 5, 1865.]

An Act to amend the law relating to the Duties on Sugar, and the drawbacks on those duties.

The duty on cane-juice is now fixed at 8*s.* 2*d.* per cwt., and the drawback on refined sugar at 12*s.* 4*d.* per cwt., but if found to contain moisture not exceeding 5 per cent., beyond what it would have if dried in a stove, a deduction of 5 per cent. is to be made thereon.

INLAND REVENUE.

[28 and 29 Victoriæ, cap. 96.—July 5, 1865.]

An Act to amend the laws relating to the Inland Revenue.

By § 1. In lieu of the scale of Stamp Duties chargeable under the title "Conveyance," the following scale of Stamp Duties shall be chargeable:—

	£	*s.*	*d.*
Where the purchase or consideration money expressed in or upon the principal or only deed, instrument, or writing of conveyance shall not exceed 5*l.*	0	0	6

			£	s.	d.
And where the same shall exceed 5*l.*	and not exceed	10*l.*	0	1	0
,, 10*l.*	,,	15*l.*	0	1	6
,, 15*l.*	,,	20*l.*	0	2	0
,, 20*l.*	,,	25*l.*	0	2	6
,, 25*l.*	,,	50*l.*	0	5	0
,, 50*l.*	,,	75*l.*	0	7	6
,, 75*l.*	,,	100*l.*	0	10	0
,, 100*l.*	,,	125*l.*	0	12	6
,, 125*l.*	,,	150*l.*	0	15	0
,, 150*l.*	,,	175*l.*	0	17	6
,, 175*l.*	,,	200*l.*	1	0	0
,, 200*l.*	,,	225*l.*	1	2	6
,, 225*l.*	,,	250*l.*	1	5	0
,, 250*l.*	,,	272*l.*	1	7	6
,, 275*l.*	,,	300*l.*	1	10	0
And where the purchase or consideration money shall exceed 300*l.*, then for every 50*l.*, and also for any fractional part of 50*l.*			0	5	0

2. And in lieu of the scale of Stamp Duties chargeable under the title "Appraisement," the following scale of Stamp Duties shall be chargeable:—

			£	s.	d.
Where the amount of the appraisement or valuation shall not exceed 5*l.*			0	0	3
And where it shall exceed 5*l.*	and not exceed	10*l.*	0	0	6
,, 10*l.*	,,	20*l.*	0	1	0
,, 20*l.*	,,	30*l.*	0	1	6
,, 30*l.*	,,	40*l.*	0	2	0
,, 40*l.*	,,	50*l.*	0	2	6
,, 50*l.*	,,	100*l.*	0	5	0
,, 100*l.*	,,	200*l.*	0	10	0
,, 200*l.*	,,	500*l.*	0	15	0
,, 500*l.*	,,	- - -	1	0	0

3. And in lieu of the scale of Stamp Duties chargeable under the title "Award," the following scale of Stamp Duties shall be chargeable:—

			£	s.	d.
For and upon every award in England or Ireland, and award or decreet arbitral in Scotland, where the amount or value of the matter in dispute shall not exceed 5*l.* -			0	0	3
And where it shall exceed 5*l.*	and not exceed	10*l.*	0	0	6
,, 10*l.*	,,	20*l.*	0	1	0
,, 20*l.*	,,	30*l.*	0	1	6
,, 30*l.*	,,	40*l.*	0	2	0
,, 40*l.*	,,	50*l.*	0	2	6
,, 50*l.*	,,	100*l.*	0	5	0
And where it shall exceed 100*l.*	and not exceed	200*l.*	0	10	0
,, 200*l.*	,,	500*l.*	0	15	0
,, 500*l.*	,,	750*l.*	1	0	0
,, 750*l.*	,,	1,000*l.*	1	5	0
And where it shall exceed 1000*l.*, and also in all other cases not above provided for			1	15	0

§ 4. And in lieu of the duty of 2*l.* now chargeable by law for or upon any licence to be granted for any of the following purposes:—

To hold the office of lecturer, reader, chaplain, church clerk, chapel clerk, parish clerk, or sexton;

For licensing a building for the performance of divine service within an ecclesiastical district formed under the provisions of the new Parishes Act;

For licensing any chapel for the solemnization of marriages therein pursuant to the provisions of the Act 6 & 7 Wm. IV., cap. 85;

For licensing or authorizing any matter which regards a consecrated building or ground, or anything to be constructed, set up, taken down, or altered therein, or to be removed therefrom;

There shall be charged and paid for or upon any such licence as aforesaid the stamp duty of 10*s.*: provided always, that nothing herein contained shall extend to charge with duty any licence expressly exempted from stamp duty by any Act of Parliament now in force

§ 5. Any agreement or memorandum for the letting of a dwelling house or tenement, or part of a dwelling house or tenement, for any period less than a year, at a rent payable weekly or monthly, and not exceeding the rate of 3*s.* 6*d.* per week, shall be chargeable with the stamp duty of 1*d.* only in lieu of any other stamp duty now chargeable.

§ 6. Duty on certificates taken out by conveyancers and special pleaders within the first three years of their practice reduced to one-half of the previous duty.

§ 7. In lieu of the stamp duty of 5*s.* now chargeable on a charterparty, the duty is now 6*d.*; but if the stamp be not cancelled the charterparty to be invalid.

§ 8. In lieu of the duties chargeable under and in respect of any sea insurance made for a certain term or period of time upon any ship or vessel, the following rates of duty are imposed for every 100*l.*, and also for any fractional part of 100*l.* whereof the same shall consist,

	£	*s.*	*d.*
For any insurance made upon or in relation to any ship or vessel lying or being in any dock, harbour, or river for any certain term or period of time not exceeding one calendar month	0	0	6
Exceeding one month, and not exceeding three months, and also where any insurance shall be made upon or in relation to any ship or vessel lying or being elsewhere than as aforesaid for any term or period of time not exceeding three months	0	1	0
For any insurance made upon any ship or vessel, wheresoever the same may be, for any term or period of time exceeding three months and not exceeding six months .	0	2	0
Exceeding six months	0	4	0

§ 9. The limitation of time for making application for allowance of stamp duty on policies of re-assurance is repealed.

§ 10. An insurance whereby any sum of money shall be assured or agreed to be paid only upon the death of any person from accident or violence, or otherwise than from a natural cause, or as compensation for a personal injury, or whereby any sum of money shall be assured or agreed to be paid as or for loss or damage or compensation for, or indemnity against loss or damage arising from or consequent upon the happening of any accident, the following duties:—

	£	*s.*	*d.*
If the premium or consideration for such assurance shall not exceed 2*s.* 6*d.*	0	0	1
If the same shall exceed 2*s.* 6d. and shall not exceed 5*s.*	0	0	3
If the same shall exceed 5*s.*, then for every 5*s.* and also for any fractional part of 5*s.*	0	0	3

§ 11. But an accidental death policy not to be chargeable as life

assurance. But this is not to repeal duties payable by the Railway Passengers Assurance Company.

§ 8 of 23 & 24 Vict., c. 111, and § 29 of 24 & 25 Vict., c. 91, are repealed by § 12.

§ 13. The provisions and penalties on conviction of fraud are continued, and policies delivered without a stamp subject the issuer to a penalty of 20*l.*

§ 14. The terms "Assurance" and "Policy" shall include any agreement or other instrument, whereby any such assurance as aforesaid shall be made or agreed to be made.

§ 15. Policies executed abroad, payable in the United Kingdom, are to be brought to be stamped within two months after being received in the United Kingdom.

§ 16. Receipts given by bankers for sums deposited on allotments of shares, or for calls on scrip or shares, not to be exempted from stamp duty.

§ 17. The stamp duty on the transfer of mortgages is for every 100*l.* or any fractional part of 100*l.* of the amount or value of the principal money or stock already secured by such mortgage, transferred or assigned, the duty of 6*d.*

§ 18. Hawkers' licences may be renewed before their expiration, and new licence to stand in place of licence surrendered.

§ 19. No stamp duty shall be chargeable upon the first grant or appointment of any person to the office or employment of out-door officer, boatman, waterman, or watchman in the service of the customs, or upon any commission or deputation granted to him in pursuance of such appointment.

§ 20. No declaration required to be made pursuant to any Act relating to marriages in order to a marriage without licence shall be chargeable with any stamp duty.

§ 21. The stamp duties on certificates of marriage, and of having received the holy sacrament, are repealed.

§ 22. Appeals against adjudications on stamp duties may be heard in Scotland and Ireland.

§ 23. British spirits in warehouse may be transferred on the production of the delivery order, and § 24 repeals 122 of 23 & 24 Vict., c. 114.

By § 25 the power of appeal is given to both parties from the decisions of commissioners or justices, but not unless the sum in dispute exceeds 50*l.*

§ 26. Persons convicted of the illegal manufacture of goods liable to excise duty may be afterwards sued for collateral penalties under § 33 of 7 & 8 Geo. IV. c. 53.

§ 27. Liquids containing purified methylic alcohol to be deemed low wines for distilling purposes, and persons distilling the same to be deemed distillers. By § 28 the preparation of methylic alcohol for distilling spirits to be carried on only in a licensed distillery, and § 29 gives the rules and regulations under which the distilling of spirits from such low wines is to be carried on, and the spirits so produced to be considered British spirits to be chargeable with excise duty.

§ 30. No contract to be made or entered into pursuant to the Highway Acts for the making, maintaining, or repairing of highways shall be chargeable with any higher stamp duty than 6*d.*

COMPOUND SPIRITS WAREHOUSING.

[28 and 22 Victoriæ, cap. 98.—July 5, 1865.]

An Act to allow British Compounded Spirits to be Warehoused upon Drawback.

Compounded spirits, or spirits of wine, may be deposited by licensed rectifiers or compounders in customs or excise warehouses under certain regulations as to strength, quantity, payment of duty, or when a certificate is furnished upon which the depositor is entitled to claim the drawback, and may be delivered for home consumption in the same manner as plain British spirits on repayment of the duty; the rectifier may add sweetening or colouring matter to spirits in the customs warehouse, on giving a day's notice, but such spirit not to be delivered except for exportation. The spirits deposited in a customs warehouse may be used in fortifying wines under the same regulations as apply to foreign or colonial spirits; or they may be bottled and packed for exportation; and the provisions of Acts relating to British spirits are to apply to compounded spirits.

COUNTY COURTS EQUITABLE JURISDICTION.

[28 and 29 Victoriæ, cap. 99.—July 5, 1865.]

An Act to confer on the County Courts a limited Jurisdiction in Equity.

By § 1 of this important Act it is enacted that the County Courts shall have and exercise all the powers and authority of the High Court of Chancery in all suits by creditors, legatees (whether specific, pecuniary, or residuary), devisees (whether in trust or otherwise), heirs-at-law, or next of kin, in which the personal or real estate, against, or for, an account or administration of which may be made, shall not exceed in amount or value the sum of 500*l.*; in all suits for the execution of trusts in which the trust estate or fund shall not exceed 500*l.*; in all suits for foreclosure or redemption, or for enforcing any charge or lien where the mortgage charge or lien does not exceed 500*l.*; in all suits for specific performance, or for the delivering up or cancelling any agreement for the sale or purchase of any property where the purchase money does not exceed 500*l.*; in all proceedings under the Trustees Relief Acts or Trustee Acts, or under any of such Acts in which the trust estate or fund to which the proceedings relate shall not exceed 500*l.*; in all proceedings relating to the maintenance or advancement of infants, in which the property of the infant shall not exceed 500*l.*; in all suits for the dissolution or winding-up of any partnership in which the whole stock, property, and credits do not exceed 500*l.*; and in all proceedings for orders in the nature of injunctions where the same are requisite for granting relief in any matter in which jurisdiction is given by this Act to the County Court; or for stay of proceedings at law to recover any debt provable under a decree for the administration of an estate made by the Court to which the application for the order to stay proceedings is made; and (§ 4) the London City Small Debts Court is to be deemed a metropolitan County Court. The judges and officers of County Courts (§ 2) are to have the powers and authorities of judges and officers of the Courts of Chancery for the purposes of this Act. Any Vice-Chancellor (§ 3) may order the transfer of any suit or matter from the County Court to the Court of Chancery; and in any proceedings taken in the County Court (§ 10) the subject matter must arise in the

district in which the County Court in which it is entered has jurisdiction. But if any County Court (§ 11) sees that a suit or matter before it may be more conveniently prosecuted in another court, the suit or matter may be so transferred. No court is to be held in September. The salaries of the judges (§ 13) are to be increased by 300*l.* a year; remuneration is provided for other officers; the judgments are to be registered; and there are other sections regulating the legal proceedings, fees, &c.; and (§ 17) rules and orders for regulating the practice, and a scale of costs are to be drawn up by County Court judges appointed for the purpose, with provision for appealing. [The Act came into operation on Oct. 1, 1865, and the rules and orders have been issued. The more important are that all suits are to be by plaint, and "every plaint in equity shall contain a concise statement of the grounds upon which the plaintiff seeks to obtain relief, and shall ask for the specific relief to which he conceives himself entitled, and also for general relief." Except where otherwise provided, the evidence is to be taken *viva voce*, and a suit is to be heard in open court, as plaints in the County Courts are now tried. Gentlemen, merchants, bankers, and professional men, per diem, from 10*s.* to 1*l.*; tradesmen, auctioneers, accountants, clerks, and yeomen, per diem, from 5*s.* to 10*s.*; artisans and journeymen, per diem, from 3*s.* to 5*s.*; and labourers and the like, per diem, from 2*s.* to 3*s.* Travelling expenses not more than 6*d.* per mile one way.]

LAND DEBENTURES, IRELAND.

[28 and 29 Victoriæ, cap. 101.—July 5, 1865.]

An Act for authorizing transferable Debentures to be charged upon Land in Ireland.

The Landed Estates Court of Ireland are empowered, after investigation, to grant to the owner of any recorded land a certificate of having allowed the raising of money on debentures, such certificate to be entered in a book; no debenture to be of less value than 50*l.*; the whole amount raised not to exceed ten times the annual value of the land, nor the interest to be more than one-half of the yearly value; the debentures to be for terms not less than six months, nor more than ten years; and are transferable under the sanction of the Court by means of a memorandum in its books; a debenture may have coupons annexed, entitling the bearer to the interest, and payment to the bearer to be a full discharge. If interest due remain unpaid for a month, the owner may apply for a sale of the land, and has the option of either receiving his principal and interest out of the proceeds, or to permit the principal to remain as a charge on the land till the debenture is due, when, in case of non-payment, he may apply for a sale.

POOR LAW BOARD CONTINUANCE.

[28 and 29 Victoriæ, cap. 105.—July 5, 1865.]

An Act to continue the Poor Law Board for a limited period.

This Act merely continues the powers of the Poor Law Board to July 23, 1866, and to the end of the then next session of Parliament, retaining to her Majesty the power of removing the Commissioners and appointing others, as provided in previous Acts.

COLONIAL GOVERNORS' RETIRING PENSIONS.

[28 and 29 Victoriæ, cap. 113.—July 5, 1865.]

An Act to authorize the Payment of Retiring Pensions to Colonial Governors.

Governors of colonies who have served in one or more colonies for a time amounting in the whole to eighteen years, who are sixty years of age, or who, if that age, shall have served the office of governor for ten years, and otherwise employed in the civil service for periods amounting in the whole to twenty-five years, or who, having served in the whole for fifteen years, has become permanently incapable, is, under the written direction of the Secretary of State, to receive a full pension, which, if he has for at least four years administered a government of which the salary was 5,000*l.*, is to be 1,000*l.*; if the salary were not less than 2,500*l.*, then 750*l.*; if not less than 1,200*l.*, then 500*l.*; and in other cases 250*l.* A reduced rate is to be granted to persons not fulfilling these conditions, but who have served for shorter periods; but persons pensioned under this Act are not to claim in addition superannuations on account of having served in other departments of the Civil Service. Any person under this Act, and not having reached the age of sixty, may be called upon to administer the government of a colony, not of a lower class than that on which his pension has been, or, in case of retirement, would be calculated, and may not relinquish it till sixty-five if not compelled by infirmity. Any person to whom a pension has been awarded, becoming entitled to half-pay, salary, &c., from the public revenue, shall be reduced by half the half-pay salary, &c. A statement of all pensions granted under this Act to be laid annually before Parliament.

PEACE PRESERVATION (IRELAND) ACT.

[28 and 29 Victoriæ, cap. 118.—July 5, 1865.]

An Act to continue and amend the Peace preservation (Ireland) Act, 1856.

The Act of 1856 which would have expired with the session of Parliament, 1865, is continued till July 1, 1866, or the end of the then next session. By the present Act printed copies of every proclamation, abstract, or notice, are to be posted on or near to the doors of all places of public worship, and of every police station and barrack of the district named in such proclamation; and the production of the *Dublin Gazette* containing the proclamation, notice, &c., to be conclusive evidence of the issuing of them in conformity with the provisions of this and the preceding Act. A copy of every proclamation carried under this Act is to be laid before Parliament.

SALMON FISHERY ACT AMENDMENT.

[28 and 29 Victoriæ, cap. 121.—July 5, 1865.]

An Act to amend the Salmon Fishery Act, 1861.

A long Act of detail as to the formation of Fishery Commissions for joint or separate counties; conservators, with their powers of regulating weirs, mill-dams, fish passes, &c., water-bailiffs, the proceedings of committees, the auditing of accounts, &c., and the granting of licences which, for the use of a rod and line, not transferable, is 20*s.* per year, or such less sum as the conservators may fix, and for other processes of

taking salmon from 20*l.* to 10*l.*; the penalty for fishing with rod and line without a licence, to be not less than double the amount of the licence, nor more than 5*l.*; and for other processes double the amount of the licence, and not more than 20*l.* Any person holding a licence, or any conservator or water-bailiff may demand the production of the licence from any one found fishing, the non-production of which without reasonable excuse involves a penalty not exceeding 20*s.* The powers of the Commissioners, when appointed, are to continue for two years, and they may not sit in Parliament. On a second conviction persons offending against the Act may be sentenced to imprisonment with hard labour for any term not exceeding six months; and if a licensed person, the licence to be forfeited. Salmon brought to any wharf or place to be shipped for exportation between Sept. 3 and Feb. 2, to be forfeited, and a penalty imposed not exceeding 2*l.* for each salmon so brought. A power of appeal is given in cases of summary conviction.

CLERICAL SUBSCRIPTION.

[28 and 29 Victoriæ, cap. 122.—July 5, 1865.]

An Act to amend the Law as to the Subscriptions and Declarations to be made and Oaths to be taken by the Clergy of the Established Church of England and Ireland.

Every person about to be ordained priest or deacon shall, before ordination, in the presence of the archbishop or bishop make and subscribe the following declaration: "I assent to the Thirty-nine Articles of Religion, and to the Book of Common Prayer, and of the ordering of bishops, priests, and deacons. I believe the doctrine of the United Church of England and Ireland, as therein set forth, to be agreeable to the word of God; and in public prayer and administration of the sacraments I will use the form in the said book prescribed, and none other, except so far as shall be ordered by lawful authority." On collation to a benefice the incumbent is to make a declaration against simony according to a prescribed form, and another form has to be signed by the incumbent and the curate on appointment to a curacy; and no other declaration or oaths are to be required; a number of clauses imposing such oaths being repealed. But on appointment to any benefice, the incumbent, or the curate after being licensed, on the first Lord's Day is to read in the presence of the congregation the Thirty-nine Articles, and afterwards make the same declaration. Wilfully failing to comply with this enactment involves the forfeiture of the benefice or licence. The Act does not extend to or affect the oath of canonical obedience to the bishop, or to the oath of due obedience to the archbishop taken by the bishop on consecration.

PRISONS.

[28 and 29 Victoriæ, cap. 126.—July 5, 1865.]

An Act to consolidate and amend the Law relating to Prisons.

The Act is divided into four parts; Part I. relating to the maintenance and government of prisons, enacts that in every place (county, riding, town, &c.), having a separate prison jurisdiction, there shall be provided "adequate accommodation for its prisoners in a prison or prisons constructed in such a manner as to comply with the requisitions of this Act." In every such prison the justices in session are to appoint a gaoler, a chaplain, a surgeon, and the necessary subordinate officers; and where females are confined, a matron and female officers. In every

prison separate cells are to be provided for the average number of committals for the last five years; with punishment cells for prison offences; and where females are confined they are to be kept in separate prisons, or separated if in the same prison in such manner as to prevent their seeing or holding any intercourse with the males; and where debtors are confined in the same prison they are to be separated from the criminal prisoners. Criminal prisoners are to be prevented from holding any communication with each other, either by confinement in separate cells, or by superintendence. No cell to be used for separate confinement unless certified by the inspector of prisons as being fitted in such a manner as is requisite for health, and has the means of enabling the prisoner to communicate at any time with an officer of the prison. The enlargement or rebuilding of prisons is entrusted to the prison authorities (*i. e.*, the justices in session, town councils, &c.), subject to the approval of the Secretary of State; but any prison authority may contract with any other prison authority for the reception and maintenance of prisoners. The Government allowance is to be withheld from inadequate prisons; the Secretary of State has power to close any such. The assisting of a prisoner to escape or attempting to escape is punishable with imprisonment with hard labour for a term not exceeding two years; the carrying spirituous liquors or tobacco into the prison incurs a penalty not exceeding 20*l.*, or imprisonment for more than six months; and for carrying letters not allowed by the regulations into or out of the prison, a penalty not exceeding 10*l.* When a prisoner is discharged, the visiting justice may order a sum not exceeding 40*s.* to be paid to the prisoner, or to the treasurer of a certified Prisoners' Aid Society to be employed for the prisoner's benefit, and the justice may furnish the prisoner with the means of returning by rail or otherwise to his place of settlement. There are directions as to the purchase of land, sale of disused prisons, and other matters of detail as to duties of officers, visiting justices, &c. Part II. contains the "Law of Prisons," which abolishes the distinction between gaol and house of correction, gives the power of removal of prisoners, and divides persons convicted of misdemeanor into two divisions, of which those in the first,—*i. e.*, such as are sentenced to imprisonment without hard labour, are not to be deemed criminal prisoners. Part III. only enacts the discontinuance of certain small prisons, of which 14 are enumerated in a schedule, and Part IV. repeals wholly or in part a number of Acts that have been superseded by the present. A schedule is annexed, containing 104 clauses of "Regulations for Government of Prisons," with minute directions for the security of the prisoners, for the separation of the sexes, and for ensuring their health. Debtors and prisoners before trial are allowed to maintain themselves and to have, at proper hours, food, wine, or malt-liquor, clothing, bedding, &c., but no part thereof may be sold to any other prisoner. Criminal prisoners, if they desire it, may wear the prison dress before trial, but may be required to do so if their own clothes are insufficient, unfit for use, or necessary to be preserved for the purposes of justice; the prison dress for prisoners before trial is to be of a different colour from that of convicted prisoners. Every male prisoner is to sleep in a cell by himself, or under special circumstances in a separate bed in a cell with not less than two others. The hair of a female prisoner is not to be cut without her consent, except on account of vermin or dirt; and the hair of male criminal prisoners is not to be cut closer than is necessary for health and cleanliness. No prisoner is to be put in irons, or under mechanical restraint by the gaoler, except in case

of urgent necessity; notice to be given forthwith to the visiting justice; nor for more than twenty-four hours without a written order from the justice, stating the cause and the time during which a prisoner is to be so kept. No prisoner is to be employed as turnkey, wardsman, yardsman, overseer, monitor or schoolmaster, or in the discipline of the prison, or in the service of any officer, or in the service or instruction of any other prisoner. Debtors, however, are not included in this prohibition.

PENALTIES LAW AMENDMENT.

[28 and 29 Victoriæ, cap. 127.—July 5, 1865.]

An Act to amend the law relating to Small Penalties.

This Act came into operation on August 1, 1865, and is to be cited as the Small Penalties Act, 1865 (§§ 1 & 2), and (§ 3) defines what is a penalty. It then enacts (§ 4) that where, upon summary conviction, any offender may be adjudged to pay a penalty not exceeding 5*l.*, such offender, in case of non-payment thereof, may, without any warrant of distress, be committed to prison for any term not exceeding the period specified in the following scale, unless the penalty be sooner paid. For a penalty not exceeding 10*s.* the imprisonment is not to exceed seven days; for a penalty not exceeding 1*l.*, 14 days; for a penalty not exceeding 2*l.*, one month; and exceeding 2*l.* and not exceeding 5*l.*, the imprisonment is not to exceed two months. By § 5 the power of imposing hard labour in addition to imprisonment in cases where hard labour might on non-payment have been so imposed if the Act had not been passed, is not to be affected; and (§ 6) it is to apply to penalties including costs recoverable in a summary manner under any Act passed before or after the commencement of the same. The Act, which is only to extend to England, is not to apply to penalties under revenue Acts (§ § 7 & 8).

MEMORANDUM.

[The following list contains the titles of the public Acts of the session of 1865, not included in the foregoing Abstracts.]

1. To amend certain clerical errors in the Civil Bill Courts Procedure Amendment Act (Ireland), 1864.

2. To extend the powers now vested in justices of the peace to grant Licences to deal in Game to the divisional magistrates within the police district of Dublin metropolis.

4. To apply the sum of 175,650*l.* out of the Consolidated Fund to the service of the year ending March 31, 1865.

5. For the incorporation of the territories of British Kaffraria with the colony of the Cape of Good Hope.

7. To confirm a provisional order under the General Police and Improvement (Scotland) Act, 1862, relating to the burgh of Perth.

10. To apply the sum of 15,000,000*l.* out of the Consolidated Fund to the service of the year 1865.

11. For punishing Mutiny and Desertion, and for the better Payment of the Army and their Quarters.

12. For the regulation of the Marine Forces while on shore.

13. To confirm certain provisional orders under the Drainage and Improvement of Lands Act (Ireland), 1863, and the Act amending the same.

15. To extend the term for granting fresh Letters Patent for the High

Courts in India, and to make further provision respecting the territorial jurisdiction of the said Courts.

16. To make further provision for the management of the Unredeemed Public Debt in Ireland, and for the reduction of the interest payable on certain sums advanced by the Bank of Ireland for the public service.

17. To enlarge the powers of the Governor-General of India in Council at meetings for making laws and regulations, and to amend the law respecting the territorial limits of the several Presidencies and Lieutenant-Governorships in India.

19. To extend the period for borrowing the sum authorized to be raised under the Metropolitan Main Drainage Extension Act, 1863.

21. To amend the Irish Bankrupt and Insolvent Act, 1857.

23. To confirm a provisional order under the Land Drainage Act, 1861.

24. To confirm certain provisional orders under the Local Government Act, 1858, relating to the districts of Bridlington, Brighouse, Burnley, Henley, Shipley, Wallingford, Llangollen, Ormskirk, Swansea, Tormoham, and Lockwood.

25. To confirm certain provisional orders under the Local Government Act, 1858, relating to the districts of Derby, Ramsgate, Oswestry, Bury, Heap, Cockermouth, Matlock Bath, and Bromsgrove.

28. To authorize certain payments out of the Land Revenues of the Crown to provide compensation for certain claims in the Isle of Man.

29. For raising the sum of 1,000,000*l.* by Exchequer Bonds for the service of the year 1865.

31. To enable the Commissioners of her Majesty's Works and Public Buildings to acquire additional lands for improving the site of the new public offices in Downing Street and the approaches thereto.

32. To enable the Secretary of State in Council of India to acquire additional lands for improving the site of the India Office and the approaches thereto.

35. To amend the law relating to the Police Superannuation Funds in counties and boroughs.

37. To make better provision respecting the transaction of county business and the Administration of Justice at Quarter Sessions in the county of Sussex; and to confirm certain proceedings of the justices of the said county.

38. To authorize the alteration of the time for holding statutory meetings of commissioners of supply in Scotland.

40. To extend to the Court of Chancery of the County Palatine of Lancaster certain of the provisions of an Act passed in the session holden in the 23 and 24 Vict., intituled An Act to give to Trustees, Mortgagees, and others, certain powers now commonly inserted in settlements, mortgages, and wils

41. To confirm certain provisional orders under the Local Government Act, 1858, relating to Sheffield, Bradford, and Gloucester.

44. For confirming a provisional order made by the Board of Trade under the Merchant Shipping Act Amendment Act, 1862, relating to the pilotage of the river Tyne.

46. To suspend the making of lists and the ballots for the Militia of the United Kingdom.

47. To defray the charge of the pay, clothing, and contingent and other expenses of the Disembodied Militia in Great Britain and Ireland; to grant allowances in certain cases to subaltern officers, adjutants, paymasters, quartermasters, surgeons, assistant surgeons, and surgeons' mates of the Militia; and to authorize the employment of the non-commissioned officers.

48. To supply means towards defraying the expenses of providing Courts of Justice and the various offices belonging thereto; and for other purposes.

49. To enable the Commissioners of Her Majesty's Works and Public Buildings to acquire a site for the erection and concentration of Courts of Justice, and of the various offices belonging to the same.

51. To enable the Admiralty to contract for certain works in connection with the extension of her Majesty's Dockyards.

52. To amend the Drainage and Improvement of Lands Acts (Ireland), and to afford further facilities for the purposes thereof.

53. To confirm a provisional order under the Drainage and Improvement of Lands (Ireland) Act, 1863, and the Act amending the same.

55. To empower the University of Oxford to make statutes as to the Vinerian Foundation in that University.

57. To amend certain provisions in the Ecclesiastical Leasing Act, 1858.

58. For confirming, with amendments, certain provisional orders made by the Board of Trade under the General Pier and Harbour Act, 1861, relating to Carrickfergus, Hastings, Maldon, Northam, and Shanklin.

59. For confirming, with amendments, a provisional order made by the Board of Trade under the Merchant Shipping Act Amendment Act, 1862, relating to the pilotage of the port of Sunderland.

61. For providing a further sum towards defraying the expenses of constructing fortifications for the protection of the Royal Arsenals and Dockyards and the ports of Dover and Portland, and of creating a central arsenal.

63. To remove doubts as to the validity of Colonial Laws.

64. To remove doubts respecting the validity of certain marriages contracted in her Majesty's possessions abroad.

65. To explain the Defence Act, 1860.

67. To amend the Acts relating to the harbour of Kingstown.

68. To enable the Ecclesiastical Commissioners for England to grant superannuation allowances to persons employed in their service.

70. To alter the distribution of the Constabulary Force in Ireland, and to make better provision for the Police Force in the borough of Belfast.

71. To amend the Acts for the establishment of a National Gallery in Dublin.

73. For regulating the payment of Naval and Marine pay and pensions.

74. To enable her Majesty's Secretary of State for the War Department to lay down and use a tramway or temporary railway across certain public roads in the county of Devon.

76. For confirming, with amendments, certain provisional orders made by the Board of Trade under the General Pier and Harbour Act, 1861, relating to Girvan, Mevagissey, and Stornoway.

78. To enable certain companies to issue Mortgage Debentures founded on securities upon or affecting land, and to make provision for the registration of such Mortgage Debentures and Securities.

80. To explain and amend the Lunatic Asylum Act, 1853, and the Lunacy Act Amendment Act, 1862, with reference to counties of towns which have courts of Quarter Sessions, but no Recorder.

81. To render valid marriages heretofore solemnized in the chapel of ease called Saint James the Greater Chapel, Eastbury, in the parish of Lamborne, in the county of Berks.

84. To amend the Prisons (Scotland) Administration Act, 1860, and to explain sections 52 and 77 of the said Act.

85. To amend the laws relating to Procurators in Scotland.

87. To enable her Majesty's Postmaster General to acquire a site for the extension of the General Post Office, in St. Martin's-le-Grand.

91. To confirm certain provisional orders made under an Act of the 15 Vict., to facilitate arrangements for the relief of Turnpike Trusts.

92. To shorten the time for the election of members to serve in Parliament for the Ayr district of burghs.

97. To indemnify such persons in the United Kingdom as have omitted to qualify themselves for offices and employments, and to extend the time limited for those purposes respectively.

100. To transfer from the Admiralty to the Board of Trade powers and duties relative to certain harbours.

102. To amend an Act of the 20 and 21 Vict. for the abatement of the nuisance arising from the Smoke of Furnaces in Scotland, and an Act of the 24 Vict. to amend the said Act.

103. To provide for the discontinuance of a separate Court of Quarter Sessions and a separate Gaol in the borough of Falmouth.

104. To amend the procedure and practice in Crown Suits in the Court of Exchequer at Westminster; and for other purposes.

106. To authorize Loans in aid of the Construction of Docks in British Possessions.

107. To continue certain Turnpike Acts in Great Britain.

108. To confirm certain provisional orders under the Local Government Act, 1858, relating to the districts of Nottingham, Rusholme, Plymouth, Redcar, Cardiff, Kingston-upon-Hull, Guildford, Ramsgate, Ryde, Workington, and Oxford, and for other purposes relative to certain districts under the said Act.

109. For transferring the Ulster Canal to the Commissioners of Public Works in Ireland.

110. To confirm a certain provisional order under the Local Government Act, 1858, relating to the Hastings district.

111. To regulate the disposal of money and effects under the control of the Admiralty, belonging to deceased officers, seamen, and marines of the Royal Navy and Marines, and other persons.

112. To repeal enactments relating to powers of the Commissioners of the Admiralty, and to various matters under the control of the Admiralty.

114. For confirming, with amendments, certain provisional orders made by the Board of Trade under The General Pier and Harbour Act, 1861, relating to Eastbourne, Clevedon, Herne Bay, Llandrillo, and Pensarn.

115. To amend the Naval Discipline Act, 1864.

116. To explain the Foreign Jurisdiction Act.

117. To regulate the appointment of a vicar or incumbent to the Vicarage of the Parish Church of Rochdale, in the county of Lancaster, and in the diocese of Manchester.

119. For continuing various expiring Acts.

120. To amend the Acts relating to the preservation and improvement of Harwich Harbour.

123. To apply a sum out of the Consolidated Fund and the surplus of Ways and Means to the service of the year ending March 31, 1866, and to appropriate the supplies granted in this session of Parliament.

124. For consolidating certain enactments relating to the Admiralty.

125. For the regulation of Dockyard Ports.

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I.—Finance.

1. An Account of the Gross Public Income of the United Kingdom of Great Britain and Ireland, in the Year ended Dec. 31, 1864, and of the actual Issues or Payments within the same period.

INCOME OR REVENUE.

Ordinary Revenue.	£.	s.	d.
Customs	22,535,000	0	0
Excise	19,343,000	0	0
Stamps	9,468,000	0	0
Taxes (Land and Assessed)	3,261,000	0	0
Property Tax	7,999,000	0	0
Post Office	4,060,000	0	0
Crown Lands (Net)	307,500	0	0
Other Receipts.			
Produce of the Sale of Old Stores, and other Military and Naval extra Receipts	750,033	7	6
Amount received from the Revenues of India on account of the effective and non-effective charges of British Troops serving in that country	1,064,099	4	8
Allowance out of Profits of Issue received from the Bank of England, per Act. 24 Vict., c. 3	131,578	0	0
Miscellaneous Receipts, including imprest and other Moneys	763,908	3	6
Unclaimed Dividends received	7,508	19	5
China War Indemnity	434,747	0	0
Total Revenue	£70,125,374	15	1

EXPENDITURE.

Funded Debt.	£.	s.	d.
Interest and Management of the Permanent Debt	23,621,612	3	8
Terminable Annuities	2,349,905	17	6
Interest of Exchequer Bonds	92,500	0	0
Interest of Exchequer Bills	313,705	9	6
Charges on Consolidated Fund.			
Civil List	406,245	10	5
Annuities and Pensions	315,069	5	4
Salaries and Allowances	163,862	19	2
Diplomatic Salaries and Pensions	171,596	13	10
Courts of Justice	673,625	17	6
Miscellaneous Charges	181,607	4	1
Supply Services.			
Army	14,774,242	6	1
Navy	11,028,253	7	9
Miscellaneous Civil Services	7,357,503	19	1
Salaries, &c., of Revenue Departments	4,559,678	10	2
Packet Service	979,396	18	2
Scheldt Toll Redemption (1st Moiety)	174,598	16	1
Total Ordinary Expenditure	67,163,404	18	4
Expenses of Fortifications	720,000	0	0
Total Expenditure	£67,883,404	18	4
Excess of Income over Expenditure	2,241,969	16	9
	£70,125,374	15	1

2. THE REVENUE.—An Abstract of the Gross Produce of the Revenue of the United Kingdom, in the under-mentioned

2. **THE REVENUE.**—AN ABSTRACT of the GROSS PRODUCE of the REVENUE of the UNITED KINGDOM, in the under-mentioned periods, ended September 30, 1865, compared with the corresponding periods of the preceding Year.

	Quarters ended				Year ended Sept. 30, 1864.	Quarters ended				Year ended Sept. 30, 1865.
	Dec. 31, 1863.	March 31, 1864.	June 30, 1864.	Sept. 30, 1864.		Dec. 31, 1864.	March 31, 1865.	June 30, 1865.	Sept. 30, 1865.	
	£.	£.	£.	£.	£.	£.	£.	£.	£.	£.
Customs	5,970,000	5,533,000	5,446,000	5,624,000	22,573,000	5,932,000	5,570,000	5,178,000	5,289,000	21,969,000
Excise	4,753,000	5,127,000	4,864,000	4,352,000	19,096,000	5,000,000	5,342,000	4,865,000	4,332,000	19,539,000
Stamps	2,293,000	2,439,000	2,539,000	2,267,000	9,538,000	2,223,000	2,501,000	2,490,000	2,272,000	9,486,000
Taxes	1,285,000	367,000	1,432,000	168,000	3,252,000	1,294,000	398,000	1,407,000	242,000	3,341,000
Property Tax	2,132,000	3,168,000	2,469,000	782,000	8,551,000	1,585,000	3,127,000	2,210,000	815,000	7,737,000
Post Office	990,000	965,000	960,000	1,045,000	3,960,000	1,090,000	1,005,000	970,000	1,145,000	4,210,000
Crown Lands	87,000	81,500	69,000	69,000	306,500	88,000	84,000	70,000	70,000	312,000
Miscellaneous	808,166	1,308,589	495,200	485,489	3,097,444	862,596	1,150,151	359,520	297,392	2,669,659
Totals	18,318,166	18,989,089	18,274,200	14,792,489	70,373,944	18,069,596	19,177,151	17,549,520	14,462,392	69,258,659

AN ACCOUNT showing the REVENUE and other RECEIPTS of the Quarter ended Sept. 30, 1865, the Application of the same, and the Charge of the Consolidated Fund for the said Quarter, together with the Surplus or Deficiency upon such Charge.

	£.
Surplus Balance beyond the Charge of the Consolidated Fund, for the Quarter ended June 30, 1865, viz.:—Ireland	826,139
Income received in the Quarter ended Sept. 30, 1865, as shown above	14,462,392
Amount raised per Acts 26-27 Vict., cap. 80, and 27-28 Vict., cap. 109., on account of Fortifications, &c.	350,000
Amount received in the Quarter ended Sept. 30, 1865, in repayment of Advances for Public Works, &c.	412,289
Balance, being the deficiency on Sept. 30, 1865, upon the Charge of the Consolidated Fund in Great Britain, to meet the Dividends and other Charges payable in the Quarter to Dec. 31, 1865, and for which Exchequer Bills (Deficiency) will be issued in that Quarter	3,018,224
	£19,069,044

	£.	£.
Amount applied in Redemption of Deficiency Bills issued in the Quarter to Sept. 30, 1865, for the charge of the Consolidated Fund in Great Britain on June 30, 1865		1,269,873
Amount applied to Supply Services, in the Quarter ended Sept. 30, 1865		9,545,156
Charge of the Consolidated Fund for the Quarter ended Sept. 30, 1865, viz.:—	£.	
Interest of the Permanent Debt	5,441,967	
Terminable Debt	916,271	
Interest of Exchequer Bills	74,548	
The Civil List	101,478	
Other Charges on Consolidated Fund	561,805	
Advances for Public Works, &c.	313,152	
Sinking Fund	624,212	
		8,033,433
Surplus Balance beyond the Charge of the Consolidated Fund in Ireland, for the Quarter ended Sept. 30, 1865		220,582
		£19,069,044

3. GROSS AMOUNT produced by CUSTOMS DUTIES upon the Principal and other Articles of Foreign and Colonial Merchandise, in the Year 1864.

	£
Cocoa	17,380
Coffee:—From British Possessions out of Europe	364,793
From Foreign Countries	30,105
Corn:—Wheat	276,871
Barley	66,864
Oats	88,807
Peas	13,155
Beans	10,943
Indian Corn or Maize	76,780
Wheatmeal and Flour	85,370
Other kinds of Grain and Meal	6,446
Fruits:—Currants	260,069
Figs	22,605
Raisins	102,947
Spices:—Pepper	120,425
Spirits:—Rum	1,896,085
Brandy	1,205,707
Geneva	57,121
Sugar, unrefined:—From British Possessions in America	1,509,761
From Mauritius	568,665
From British Possessions in the East Indies	226,430
From Foreign Countries	2,468,354
Sugar, Refined, and Candy:—From British Possessions out of Europe	3,234
From Foreign Countries	527,737
Sugar, Molasses: From British Possessions out of Europe	33,248
From Foreign Countries	57,272
Tea	4,431,868
Timber and Wood:—Not sawn or split, or otherwise dressed, except hewn:—	£.
From British Possessions	34,539
Foreign	39,010
Deals, Battens, Boards, or other Timber or Wood, sawn or split:—From British Possessions	78,056
Foreign	120,450
Firewood	6,945
Lathwood	4,340
Tobacco:—Stemmed	2,036,424
Unstemmed	3,865,677
Manufactured, and Snuff	189,658
Wine:—Under 26 dgs.	75,733
,, 45 ,, to 3rd April, 1862, under 42 dgs. from that date	1,110,257
42 dgs. and upwards from 3rd April, 1862	5,090
In bottles: under 40 dgs. to 3rd Apr., 1862, under 42 dgs. from that date	128,187
Other Articles	274,802
Total	22,498,210
The drawbacks and allowances on quantities over-entered, damaged, &c., was	204,707
Net Produce, not deducting charge for collecting	22,293,503

4. CORNWALL, DUCHY OF.—The revenue for the year ending Dec. 31, 1864, was 68,411*l.*, exclusive of the balance in hand from 1863 of 5,03c*l.* Of this income 48,739*l.* arose from the profits of courts, royalties of coal-mines, quarries, sale of wood, &c.; 16,217*l.* from the Consolidated Fund in lieu of tin coinage duties, &c.; 2,858*l.* from dividends on stock; and 597*l.* from interest on balance of money expended in the purchase of the toll tin lease and expenses and repayments from capital. The expenditure was 65,699*l.*, of which 50,000*l.* were paid to the treasurer of the Prince of Wales; 809*l.* in repairs, improvements, and purchases; 5,011*l.* in deductions and allowances to tenants; 2,251*l.* in superannuations, charities, law-charges, &c., 7,628*l.* for expenses of management; and 7,742*l.* remained in the hands of bankers or agents. The capital account shows a balance of 86,493*l.* in 3 per cent. stocks, and 1,024*l.* in cash.

5. LANCASTER, DUCHY OF.—The receipts from rents, royalties, &c., in 1864, amounted to 39,928*l.*, and the disbursements were 11,734*l.* for salaries and expenses, taxes, and allowances. The sum of 26,000*l.* was paid over to the Keeper of her Majesty's Privy Purse. 4000*l.* had been received from the Law Fire Insurance Office, on account of the Savoy Chapel, which had been invested in Exchequer Bills, and held for the restoration of the chapel. On the capital account there was a balance of 43,132*l.* invested in consols.

6. INCOME TAX.—The number of persons charged to income-tax under Schedule D, at various rates of income, and the amount of the incomes of each class in the year ended April 5, 1864.

	Income charged.	Persons.
Under £100 a year...	£2,502,342	56,682
£100 and under £150	13,766,685	153,120
150 ,, 200		
200 ,, 300	9,204,866	41,592
300 ,, 400	5,800,397	18,278
400 ,, 500	3,893,064	9,313
500 ,, 600	3,648,578	7,097
600 ,, 700	2,489,836	4,026
700 ,, 800	1,864,909	2,549
800 ,, 900	1,846,656	2,231
900 ,, 1,000	876,701	944
1,000 ,, 2,000	8,734,108	6,862
2,000 ,, 3,000	4,853,855	2,103
3,000 ,, 4,000	3,627,017	1,100
4,000 ,, 5,000	2,413,357	557
5,000 ,, 10,000	7,565,070	1,140
10,000 ,, 50,000	14,065,019	731
50,000 and upwards..	8,744,762	91
	95,844,222	308,416

The gross receipt from all classes for the year was in Great Britain, 8,385,242*l.*, in Ireland, 616,190*l.*, on a tax of 7*d.* in the pound, with an allowance of 60*l.* on incomes below 200*l.* The number of persons in Schedule D in 1858 was 207,042.

7. Crown Land Revenues.—The Report of the Commissioners of Woods, Forests, and Land Revenues shows that in the financial year 1863-64 the income amounted to 425,766*l.*; namely, 391,785*l.* from estates, and 33,981*l.* from royal forests and woodlands. The expenditure out of income amounted to 123,206*l.*; namely, 18,123*l.* for compulsory charges, including property-tax and fixed charges; 26,565*l.* in respect of the royal forests and woodlands; and 78,518*l.* in respect of the estates, for cost of collection of rents, management, and improvements, under which latter head two items appear to fall, viz., 21,561*l.* for repairs and improvements, and 9,906*l.* for the reclamation and improvement of portions of the Delamere estate. The balance of the account is 302,560*l.*, but the sum of 305,000*l.* was paid over to the Exchequer, leaving rather a smaller balance in hand than at the beginning of the year. The salaries and expenses of the Office of Woods and Forests are not paid out of income, but voted annually by Parliament; this expenditure in the year in question is stated at 26,290*l.*, besides 1,029*l.* for the Landed Estates Record-offices.

8. Account of the Total Income of the Revenue of India and of the Public Expenditure in the Year ended April 30, 1864.

Revenue.	£.
Land revenue, including tributes and contributions from Native States, Forest Revenue, and Abkaree Revenues, &c.	23,384,126
Assessed Taxes	1,483,622
Customs	2,384,061
Salt	5,035,696
Opium	6,831,999
Stamps	1,735,216
Mint	369,759
Post Office	459,882
Electric Telegraph	91,762
Law and Justice, and Police	631,798
Marine	307,715
Public Works	461,785
Miscellaneous, Civil	615,903
„ Military	747,431
Interest	72,277
	£44,613,032

Expenditure.	£.
Repayments, Allowances, Refunds, and Drawbacks	333,565
Charges of Collection and Payments in realization of the Revenue, including Cost of Salt and Opium	6,336,145
Allowances and Assignments under Treaties, &c.	1,721,335
Allowances to District and Village Officers, &c.	585,089
Charges in India, including Interest on Debt and Value of Stores received from England	29,111,638
Charges in England, excluding the Value of Stores supplied to India	4,777,630
Guaranteed Interest on the Capital of Railway and other Companies, in India and in England, deducting Net Traffic Receipts	1,669,283
Excess of Income	78,347
	£44,613,032

The estimated revenue of India for the year ending April 30, 1865, is 46,284,106*l.*; and the expenditure 46,547,483*l.*; creating a deficiency of 263,377*l.*

9. Taxes Repealed or Reduced.—In 1864 the customs duties on sugar, confectionery, and articles preserved in sugar, were reduced to the estimated amount of 1,744,384*l.*; the excise licenses for the sale of tea to the amount of 15,000*l.*; the duty on fire insurances of stock-in-trade reduced to the amount of 255,000*l.*, and the property and income-tax reduced by 1,230,000*l.* An increase was made of occasional excise licenses to beer and wine-retailers, of 1,000*l.*, and for sugar used in brewing, of 6,000*l.*; and 2,000*l.* additional excise duty imposed on chicory. A total of 9,000*l.* increase against a remission of 3,244,384*l.*

10. National Debt.—The amount of the National Debt on March 31, 1865, was of the unredeemed funded debt 775,768,295*l.*; the estimated capital of terminable annuities was 21,778,603*l.*; and of the unfunded debt 10,742,500*l.*; a total of 808,289,398*l.*, a decrease of 4,940,736*l.* from the total of the previous year.

11. Public Debt in Ireland. — The amount of Government funds in the books of the Bank of Ireland exceeds 36,700,000*l.* The number of Accounts made up, August 1864 was 27,212, which is 740 accounts per 1,000,000*l.*, the number in England being only 377 per 1,000,000*l.* of stock. The allowance to the Bank of Ireland for the management of the public debt in Ireland, and the transaction of the Government business (except unclaimed dividends, for which a separate arrangement is made), is now to be 45*l.* a year per 1,000,000*l.* for capital up to 30,000,000*l.*, 30*l.* per 1,000,000*l.* from that amount up to 40,000,000*l.*, and 15*l.* per 1,000,000*l.* for any excess beyond 40,000,000*l.*

12. Local Taxation.—The annual accounts of the county treasurers of England and Wales show that the total assessment for the county-rate amounted to 72,655,209*l.*; an increase of 1,316,035*l.* The rate varied from 1¼*d.* in the western division of Essex to 10*d.* in Brecknockshire. The receipt from

county and police rates, in the year ending Michaelmas, 1864, was 1,305,316*l.*; the Treasury allowance for prosecution of prisoners and towards expenses of police, was 326,463*l.*; both items less than in 1863. The chief items of expenditure were: 619,630*l.* for rural police, 1,451*l.* more than in previous year; on gaols, 366,531*l.*, no less than 15,367*l.* in excess of last year; on prosecution of prisoners, 22,366*l.*, county-bridges cost 48,783*l.*; clerks of the peace 47,465*l.*, coroners 59,197*l.*, and militia storehouses 34,095*l.*

II.—Currency.

13. Statement of the Affairs of the Bank of England from the Weekly Returns of the undermentioned dates in 1864 and 1865.

	Nov. 16, '64.	Feb. 8, '65.	May 24.	July 19.	Oct. 18.
Issue Department.	£.	£.	£.	£.	£.
Dr.—Notes issued	27,766,240	28,421,230	29,009,355	28,798,880	26,654,840
Cr.—Government Debt	11,015,100	11,015,100	11,015,100	11,015,100	11,015,100
Other Securities	3,634,900	3,634,900	3,634,900	3,634,900	3,634,900
Gold Coin and Bullion	13,116,240	13,771,230	14,359,355	14,148,880	12,004,840
Total	27,766,240	28,421,230	29,009,355	28,798,880	26,654,840
Banking Department.					
Dr.—Proprietors' Capital	14,553,000	14,553,000	14,553,000	14,553,000	14,553,000
Rest	3,310,036	3,608,953	3,220,530	3,460,096	3,173,598
Public Deposits	5,142,368	6,252,892	7,997,105	4,932,103	3,589,353
Other Deposits	14,426,234	13,814,063	13,551,860	14,894,217	14,013,614
Seven Days' and other Bills	556,115	463,950	468,575	554,971	565,913
Total	37,987,753	38,692,858	39,791,070	38,394,387	35,895,478
Cr.—Government Securities	10,374,542	11,023,211	10,984,441	10,398,909	9,326,477
Other Securities	19,305,241	18,787,891	19,719,276	20,496,546	21,447,283
Notes	7,571,855	8,141,375	8,147,440	6,564,445	4,336,600
Gold and Silver Coin	736,115	740,381	939,913	934,487	785,118
Total	37,987,753	38,692,858	39,791,070	38,394,387	35,895,478

14. Note Circulation of the United Kingdom for the Months ending at the following dates in 1864 and 1865.

	Nov. 12, '64.	Feb. 4, '65.	May 27.	July 22.	Oct. 14.
	£.	£.	£.	£.	£.
Bank of England	20,906,439	20,467,763	21,251,548	21,993,548	21,965,514
Private Banks	3,211,348	3,074,159	3,000,546	2,882,093	3,122,002
Joint Stock Banks	2,855,423	2,788,089	2,847,871	2,759,162	2,919,154
Scotland	4,444,334	4,157,576	4,596,951	4,371,737	4,515,404
Ireland	5,956,310	5,713,708	5,930,449	5,718,427	6,607,715
Total	37,373,854	36,201,295	37,627,365	37,724,967	39,129,789

15. Coinage.—In 1864 there were coined—

Gold.	No.	Value. £.	s.	d.
Sovereigns	8,656,352	8,656,352	0	0
Half-Sovereigns	1,758,490	879,245	0	0
Total gold	10,414,842			
Silver.				
Florins	1,861,200	186,120	0	0
Shillings	4,518,360	225,918	0	0
Sixpences	4,253,040	106,326	0	0
Fourpences	4,158	69	6	0
Threepences	1,335,048	16,688	0	3
Twopences	4,752	39	12	0
Pence	7,920	33	0	0
Total silver	11,984,578	535,193	18	3

Bronze.	No.	Value. £.	s.	d.
Pence	3,440,640	14,336	0	0
Halfpence	537,600	1,120	0	0
Farthings	2,508,800	2,613	0	8
Total bronze	6,487,040	18,069	0	8

The real cost of the silver was 14,191*l.* less than the coined value, and the metal for the bronze not quite 9000*l.* But there was a loss on the worn silver coin, withdrawn from use, of 16,693*l.*, the amount called in, at the nominal value, being 123,500*l.*

16. Bullion.—The amount of gold bullion purchased by the Bank of England in 1864

was 7,905,345*l.*; the amount sold in the same period was 1,422,794*l.* The excess of payments in gold coin was 6,757,764*l.*, the Mint supplying 9,033,078*l.* In 1864 there was imported gold to the value of 16,900,951*l.*, and silver to the value of 10,827,325*l.* Of the gold the United States furnished 7,479,790*l.*; Mexico, South America (except Brazil), and the West Indies, 5,239,899*l.*, and Australia only 2,656,971*l.*: of the silver, Mexico, South America (except Brazil), and the West Indies, sent 7,002,384*l.*; Belgium, 1,185,259*l.*; and France, 1,115,096*l.* The exports of gold amounted to 13,280,311*l.*; of which 7,775,111*l.* went to France; 2,059,754*l.* to Egypt; 1,385,900*l.* to Spain; and 926,944*l.* to Brazil; of the silver to 9,877,204*l.*; of which 1,697,786*l.* in coin, chiefly for China, and 4,610,543*l.* in bullion, chiefly for India, were sent to Egypt; 2,146,413*l.* to France; and 540,744*l.* to Holland.

III.—Trade.

17. Imports and Consumption of the Principal Articles of Foreign and Colonial Merchandise in the Year ended December 31, 1864, with the Computed Real Value.

Articles Free of Duty.		Imported.	Computed Real Value.
Animals, Living:—Oxen, Bulls, and Cows	number	179,507	£3,208,851
Calves	,,	52,227	
Sheep and Lambs	,,	496,243	873,905
Swine and Hogs	,,	85,362	
Ashes, Pearl and Pot	cwts.	176,327	..
Bark for Tanners' or Dyers' use	,,	331,366	..
,, Peruvian	,,	20,383	..
Bones (whether burnt or not, or as Animal Charcoal)	tons	68,869	408,205
Brimstone	cwts.	795,702	296,634
Bristles	lbs	2,346,135	303,041
Caoutchouc	cwts.	71,027	502,645
Clocks	number	375,922	507,513
Watches	,,	133,753	
Cotton, Raw:—From United States	cwts.	126,322	1,711,890
Bahamas and Bermuda	,,	376,047	4,884,504
Mexico	,,	228,027	2,954,127
Brazil	,,	339,442	4,379,793
Turkey	,,	169,234	1,716,508
Egypt	,,	1,120,479	14,300,507
British India	,,	4,522,566	38,214,723
China	,,	769,259	6,242,504
Other countries	,,	324,559	3,799,173
Total of Raw Cotton	,,	7,975,935	78,203,729
Cotton Manufactures	value £.	833,629	833,629
Cream of Tartar	cwts.	49,137	..
Dyes and Dyeing Stuffs:—Brazil Wood	tons	2,050	..
Cochineal	cwts.	23,396	416,021
Indigo	,,	76,214	2,248,112
Logwood	tons	41,625	..
Madder and Madder Root	cwts.	314,929	604,117
Garancine	,,	42,714	
Shumac	tons	12,292	168,592
Terra Japonica	,,	11,426	..
Cutch	,,	2,980	359,873
Valonia	,,	22,673	328,570
Elephants' Teeth	cwts.	11,143	361,384
Flax (dressed and undressed), and Tow or Codilla of Flax	,,	1,842,947	5,323,953
Fruit:—Lemons and Oranges	bushels	1,276,643	682,552
Glass:—Window Glass	cwts.	236,607	
Plate Glass	,,	31,719	547,499
Flint, Cut, Coloured, or ornamented	,,	26,147	
Of other kinds	,,	48,626	
Guano	tons	331,358	1,457,088

		Imported.	Computed Real Value. £.
Gum Shellac	cwts.	40,071	..
Gutta Percha	,,	35,636	275,000
Hair:—Goats' Hair or Wool	lbs.	4,737,330	650,191
Manufactures of Goats' Hair or Wool	value £.	215,748	244,283
Hemp (dressed and undressed), and Tow or Codilla of Hemp	cwts.	1,010,688	1,609,820
Jute and other vegetable substances of the nature of Hemp	,,	2,047,287	2,192,498
Hides, Untanned:—Dry	,,	272,685	1,023,398
Wet	,,	682,075	1,644,413
Tanned, Tawed, Curried, or Dressed (except Russia Hides)	lbs.	6,292,022	464,131
Hops	cwts.	98,656	549,863
Leather Manufactures:—Boots, Shoes, of all kinds	pairs	220,768	..
Boot Fronts	,,	149,172	..
Gloves	,,	10,099,266	1,094,032
Metals:—Copper Ore	tons	66,916	1,024,360
Copper Regulus	,,	26,388	1,030,014
Copper, unwrought and part wrought	cwts.	498,780	2,206,525
Iron, in Bars, unwrought	tons	53,918	625,283
Steel, unwrought	,,	7,619	..
Lead, Pig and Sheet	,,	30,616	611,273
Spelter or Zinc	,,	31,282	720,384
Tin, in Blocks, Ingots, Bars, or Slabs	cwts.	98,098	497,328
Silver Ore	value £.	251,567	..
Oil:—Petroleum	tuns	21,076	455,913
Train, Blubber, and Spermaceti	,,	14,701	853,991
Palm	cwts.	666,582	1,121,370
Cocoa Nut	,,	375,208	716,175
Olive	tuns	16,705	958,397
Seed Oil of all kinds	,,	11,769	502,548
Oil of Turpentine	cwts.	104,359	362,645
ll Seed Cakes	tons	105,570	828,969
aper for Printing or Writing	cwts.	153,054	392,840
Of other kinds, except Paper Hangings	,,	89,553	129,607
Potatoes	,,	742,384	142,986
Provisions:—Bacon and Hams	,,	1,069,490	2,292,739
Beef, Salt	,,	302,860	520,032
Pork, Salt	,,	189,410	528,935
Butter	,,	1,054,617	5,652,704
Cheese	,,	834,844	2,176,248
Eggs	number	335,298,240	835,028
Lard	cwts.	217,275	490,425
Pyrites	tons	170,990	..
Quicksilver	lbs.	4,763,499	..
Rags and other Materials for making Paper:—			
Linen and Cotton Rags	tons	23,732	693,392
Esparto, and other Vegetable Fibre	,,	43,403	
Other Materials for making Paper	,,	682	
Rice, not in the Husk	cwts.	3,189,691	1,810,022
Rosin	,,	353,824	559,810
Saltpetre	,,	343,582	554,212
Cubic Nitre	,,	670,448	509,955
Seeds:—Cotton	tons	84,642	..
Clover	cwts.	226,278	615,910
Flaxseed and Linseed	qrs.	1,434,973	3,947,221
Rape	,,	235,578	635,221
Silk:—Raw	lbs.	5,655,401	6,336,903
Waste, Knubs, and Husks	cwts.	24,876	..
Thrown	lbs.	73,160	123,281
Silk Manufactures of Europe:—Broad Stuffs	,,	1,812,588	4,493,507
Ribbons, Silk or Satin	,,	544,151	1,305,962
Gauze or Crape	,,	650	1,853
Velvet or Plush	,,	253,331	531,994
Plush for making Hats	,,	95,500	133,700
Silk Manufactures of India:—Bandannas, Corahs, Choppas, Tussore Cloths, Romals, and Taffaties	pieces	86,890	69,332

		Imported.	Computed Real Value. £.
Spices:—Cinnamon	lbs.	645,514	62,108
Ginger	cwts.	34,745	..
Nutmegs	lbs.	809,095	48,864
Pimento	cwts.	44,045	..
Tallow	,,	1,014,566	2,077,726
Tar	lasts	18,096	..
Turpentine, Common	cwts.	52,968	..
Wool, Sheep and Lambs':—From Hanse Towns and other Parts of Europe	lbs.	42,038,740	2,850,446
British Possessions in South Africa	,,	19,880,805	1,424,798
British India	,,	20,425,355	979,043
Australia	,,	99,037,459	8,816,626
Other Countries	,,	22,426,659	1,082,781
Total	,,	203,809,018	15,162,694
Alpaca and the Llama Tribe	,,	2,664,027	341,122
Woollen Rags, torn up to be used as Wool	,,	22,482,880	494,611
Woollen Manufactures:—Not made up	value £.	1,669,347	1,669,347
Shawls, Scarfs, and Handkerchiefs	lbs.	171,598	..
Woollen and Worsted Yarn	,,	4,663,437	..
Yeast, Dried	cwts.	115,304	231,748

Other articles make up a total value of £274,863,024.

ARTICLES SUBJECT TO DUTY.

		Imported.	Entered for Home Consumption.	Computed Real Value. £.
Cocoa	lbs.	7,920,712	4,171,082	219,855
Coffee	,,	109,370,213	31,591,122	3,606,152
*Corn:—Wheat	cwts.	23,196,714	23,318,729	10,674,654
Barley	,,	4,921,362	4,957,569	1,624,291
Oats	,,	5,562,959	5,609,196	1,827,990
Peas	,,	1,114,083	1,123,790	428,076
Beans	,,	909,270	911,425	344,908
Indian Corn or Maize	,,	6,285,938	6,313,366	1,977,955
Wheat Meal and Flour	,,	4,512,391	4,552,939	2,832,200
Indian Corn Meal	,,	4,027	4,456	2,941
Fruit:—Currants	,,	764,492	743,012	719,680
Raisins	,,	307,462	294,096	477,812
Mahogany	tons.	41,013	41,012	386,164
Spices:—Pepper	lbs.	17,287,547	4,587,582	257,779
Spirits:—Rum	proof galls.	5,499,894	3,729,732	480,172
Brandy	,,	4,907,770	2,314,956	1,505,382
Sugar, Unrefined:—First Quality (equal to White Clayed)	cwts.	224,062	100,108	359,693
Second Quality (not equal to White, but equal to Brown Clayed)	,,	4,545,016	3,580,964	6,496,366
Third Quality (not equal to Brown Clayed) as entered previously to 16th April, 1864	,,	971,905	1,369,744	1,369,105
Third Quality (not equal to Brown Clayed, but equal to Brown Muscovado) as entered subsequently to 16th April, 1864	,,	3,731,182	3,149,283	4,704,666
Fourth Quality (not equal to Brown Muscovado) as entered subsequently to 16th April, 1864	,,	1,295,373	989,512	1,479,008
Sugar, Refined, and Sugar Candy	,,	945,663	802,474	1,668,768
Molasses	,,	579,513	†506,828	380,085

* Since September last, all kinds of Imported Corn and Grain (Malt excepted) have been entered at the Custom House, and charged with Duty by *Weight* instead of *Measure* as formerly.

† Including 28,044 cwts. delivered duty free for use in distilleries.

		Imported.	Entered for Home Consumption.	Computed Real Value.
				£.
Tea	lbs.	124,359,243	88,637,099	9,438,760
Timber and Wood:—Deals, Battens, Boards, or other Timber or Wood Sawn or Split	loads	1,986,081	1,986,081	6,010,341
Staves, not exceeding 72 in. long	,,	62,121	62,122	588,076
Timber or Wood not Sawn or Split, or otherwise Dressed, except Hewn, and not otherwise charged with Duty	,,	1,480,451	1,480,451	4,949,935
Tobacco:—Stemmed	lbs.	10,605,418	12,929,668	631,627
Unstemmed	,,	49,487,350	24,545,508	1,952,409
Manufactured, Cigars, and Snuff	,,	6,522,408	764,345	798,285
Wine:—Red	galls.	5,982,812	4,956,805	1,428,827
White	,,	9,468,810	6,499,910	3,574,057

The total real value of enumerated articles for the year was £226,057,691.

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18. Exports of the Principal Articles of Foreign and Colonial Merchandise in the Year ended December 31, 1864.

Bacon and Hams	cwts.	74,535
Caoutchouc	,,	29,107
Cheese	,,	9,657
Cocoa	lbs.	2,960,129
Coffee:—		
Of British Possessions	,,	62,298,298
Foreign	,,	17,010,981
Corn:—Wheat	cwts.	37,869
Wheat-meal or Flour	,,	42,309
Cotton, Raw	,,	2,184,842
Cotton Manufactures	value £.	208,728
Dyes and Dyeing Stuffs:—		
Cochineal	cwts.	15,305
Indigo	,,	57,664
Fruit:—Currants	,,	109,330
Raisins	,,	45,289
Goats' Hair, Manufactures of	value £	54,945
Guano	tons.	9,184
Gum Shellac	cwts.	26,843
Hemp	,,	82,318
Jute, and other vegetable substances of the nature of Hemp	,,	273,223
Hides, Untanned — Dry	,,	150,009
Wet	,,	55,610
Hops	,,	8,831
Leather Manufactures:—		
Gloves	pairs.	20,556
Metals:—Copper	cwts.	180,443
Tin, in Blocks, Ingots, Bars, or Slabs	,,	27,913
Oil:—Petroleum	tuns.	6,188
Palm	cwts.	193,309
Cocoa Nut	,,	226,670
Olive	tuns.	978
Paper, White, for Printing or Writing	cwts.	23,452
Other kinds, except Hangings	,,	4,986
Quicksilver	lbs.	2,962,451
Rags and other Materials for making Paper	tons.	244
Rice, not in the Husk	cwts.	1,579,325
Saltpetre	,,	27,498
Seed:—Flax & Linseed	qrs.	127,036
Rape	,,	73,135
Silk:—Raw	lbs.	3,922,130
Waste, Knubs, and Husks	cwts.	844
Thrown	lbs.	334,065
Silk Manufactures of Europe:—		
Broad Stuffs: Silk or Satin	lbs.	14,824
Broad Stuffs: Gauze, Crape, and Velvet	,,	4,627
Ribbons of all kinds	,,	12,290
Silk Manufactures of India:—		
Bandannas, Corahs, Choppas, Tussore Cloths, Romals, and Taffaties	pieces	43,110
Spices:—Cinnamon	lbs.	843,850
Pepper	,,	13,151,420
Spirits:—Rum	prf.galls.	2,132,231
Brandy	,,	750,121
Mixed in Bond	,,	1,079,678
Sugar:—Unrefined	cwts.	354,441
Refined, and Candy	,,	46,025
Molasses	,,	63,355
Tallow	,,	28,557
Tea	lbs.	27,545,341
Teeth, Elephants'	cwts.	5,549
Tobacco:—Stemmed	lbs.	789,760
Unstemmed	,,	13,689,806
Manufactured, and Snuff	,,	3,448,473
Wine:—Red	galls.	777,020
White	,,	1,273,410
Mixed in Bond	,,	34,869
Wool:—Sheep and Lambs', Produce of British Possessions	lbs.	49,483,624
Foreign	,,	6,381,167
Alpaca and the Llama Tribe	,,	68,948

19. EXPORTS of the PRINCIPAL and OTHER ARTICLES of BRITISH and IRISH PRODUCE and MANUFACTURES in the Year ended December 31, 1864.

		Quantities.	Declared Value. £.
Alkali:—Soda	cwts.	2,195,578	917,262
Apparel and Slops	value	..	2,583,653
Arms, Ammunition, and Military Stores:—Fire-arms (small)	number	260,986	344,476
Gunpowder	lbs.	15,466,844	432,208
Of all other kinds (except Lead Shot included in Lead)	value	..	221,103
Bacon and Hams	cwts.	67,512	250,681
Bags, empty	dozens	943,950	749,454
Beef and Pork	cwts.	27,476	58,213
Beer and Ale	barrels	490,486	1,823,162
Books, Printed	cwts.	33,917	465,752
Butter	,,	67,537	327,536
Candles, Stearine and Composition	lbs.	3,775,127	142,399
Carriages, Railway	number	2,834	323,420
Of other sorts	,,	1,971	177,470
Cheese	cwts.	36,518	147,676
Coals, Cinders, and Culm	tons	8,800,420	4,161,338
Cordage and Twine	cwts.	163,246	432,768
Cotton Yarn	lbs.	75,738,845	9,096,209
Cotton Manufactures:—			
Piece Goods of all kinds, Plain, Printed, or Coloured	yds.	1,748,927,599	43,887,387
Lace and Patent Net	value	..	367,215
Hosiery:—Stockings	doz. pairs	611,628	247,711
Of other kinds	value	..	213,438
Counterpanes and Small Wares	,,	..	257,832
Thread for Sewing	lbs.	4,509,589	787,697
Total value of Cotton Manufactures			45,760,080
Drugs and Chemical Products:—Medicines	value	..	498,551
Unenumerated, used in Dyeing and other processes subservient to Manufactures and the Arts	,,	..	405,642
Earthenware and Porcelain	packages	240,460	1,422,130
Fish:—Herrings	barrels	396,963	501,954
Other sorts	value	..	249,285
Furniture, Cabinet and Upholstery Wares	,,	..	258,927
Glass:—Flint	cwts.	108,159	331,285
Window	,,	60,473	74,653
Common Bottles	,,	571,912	287,163
Plate	sq. feet	506,596	64,426
Haberdashery and Millinery	value	..	4,786,899
Hardwares:—			
Cutlery, &c.	,,	..	398,276
Manufactures of Steel, or of Steel and Iron combined	,,	..	514,221
Manufactures of German Silver, of Pewter, and Britannia Metal, of Papier Maché, Lamps, Chandeliers and Candelabra, and Hardware not specifically described	,,	..	3,246,610
Hats of all kinds	dozens	254,477	401,790
Horses	number	4,657	230,821
Jute:—Manufactures, not made up	yds.	13,675,318	310,326
Manufactures, made up	value	..	45,587
Yarn	lbs.	5,491,761	114,169
Leather, Tanned, Tawed, or Dressed, Unwrought	cwts.	37,647	377,534
Wrought, Boots and Shoes	pairs	4,844,659	1,482,631
Wrought, of other Sorts	lbs.	1,060,279	198,975
Saddlery and Harness	value	..	345,419

		Quantities.	Declared Value. £.
Linen Yarn	lbs.	40,510,967	3,010,109
Linen Manufactures:—Piece Goods of all kinds	yds.	209,859,714	7,591,535
Thread	lbs.	4,030,365	494,312
Hosiery and other Goods entered at value	value	. .	72,698
Machinery:—Steam Engines	,,	. .	1,626,342
Other sorts	,,	. .	3,227,848
Metals:—Iron: Pig and Puddled	tons	465,951	1,411,513
,, Bar, Angle, Bolt, and Rod	,,	277,672	2,559,009
,, Railroad, of all sorts	,,	402,331	3,260,781
,, Wire (except Telegraphic Wire)	,,	18,296	396,757
,, Castings	,,	66,895	656,085
,, Hoops, Sheets, and Boiler Plates	,,	123,132	1,780,355
,, Wrought, of all sorts	,,	107,222	2,237,038
,, Old, for re-manufacture	,,	6,599	31,253
,, Steel, Unwrought	,,	26,532	881,503
Copper: Unwrought, in Ingots, Cakes, or Slabs	cwts.	120,042	588,355
,, Wrought or partly Wrought, Bars, Rods, Bottoms, Pans, Plates, Sheets and Nails; and Mixed or Yellow Metal for Sheathing	,,	591,931	2,920,592
,, Wrought, of other sorts	,,	27,651	169,280
Brass of all sorts	,,	42,228	232,864
Lead: Pig, Rolled, Sheet, Piping, Tubing, and Lead Shot	tons	34,792	761,673
Lead Ore, Red and White Lead, and Litharge of Lead	,,	6,504	165,623
Tin, Unwrought	cwts.	90,050	483,098
Tin Plates	,,	1,003,569	1,264,100
Zinc or Spelter, Wrought or Unwrought	,,	103,691	111,976
Oil, Seed	gallons	8,396,696	1,255,961
Painters' Colours	value	. .	496,395
Paper for Writing and Printing	cwts.	116,071	426,135
of other kinds (except Hangings)	,,	51,734	123,957
Pickles and Sauces	value	. .	372,376
Plate, Plated Ware, Jewellery, and Watches	,,	. .	426,498
Rags and other Materials for making Paper, viz.:			
Rags, Linen, Cotton, &c.	tons	1,814	37,040
Vegetable Fibre, old Ropes, and other Materials for making Paper	,,	605	8,811
Salt	,,	596,036	281,443
Silk, Thrown	lbs.	468,591	558,419
Silk Twist and Yarn	,,	522,953	296,971
Silk Manufactures:—Broad Piece Goods, Fancy Silks and Satins, Velvet and Grey Cloths of Silk only	yards	1,832,051	379,535
Handkerchiefs, Scarfs, and Shawls, of Silk only	dozens	191,074	285,779
Ribbons of Silk only	lbs.	87,481	107,369
Other Articles of Silk only	value	. .	349,669
Silk Manufactures mixed with other Materials	,,	. .	337,662
Soap	cwts.	182,399	231,314
Spirits, British	gallons	4,199,304	503,357
Stationery, other than Paper	value	. .	354,564
Sugar, Refined	cwts.	119,534	201,377
Telegraphic Wire and Apparatus	value	. .	218,325
Wool, Sheep and Lambs'	lbs.	7,850,516	695,302
Woollen and Worsted Yarn	,,	31,926,855	5,422,162
Woollen and Worsted Manufactures:—Cloths of all kinds, Duffels, and Kerseymeres, of Wool unmixed, or mixed with other materials	yards	29,786,888	4,546,054
Flannels	,,	8,801,932	554,613
Blankets	,,	7,572,516	796,144
Blanketing and Baizes	,,	1,768,269	153,795
Carpets and Druggets	,,	5,988,633	872,598
Shawls, Rugs, Coverlets or Wrappers, and Carpet Rugs	number	949,463	307,277
Worsted Stuffs of Wool only, and of Wool mixed with other materials, and Waistcoatings	yards	187,566,716	10,801,854

	Quantities.	Declared Value. £.
Woollen and Worsted Manufactures:—		
Hosiery, Stockings . . . . doz. pairs	208,363	113,325
,, Other than Stockings . . value	. .	265,361
Small Wares . . . . . ,,	. .	155,057
Total Declared Value { Enumerated Articles . . .		152,894,532
Unenumerated Articles . . .		7,541,770
All Articles . . .		£160,436,302

The total declared value of the Exports of British and Irish Produce and Manufacture, as here shown, was 160,436,302*l.*, of which 51,683,430*l.* was sent to British Colonies and, Possessions, and 108,752,872*l.* to foreign countries. Of British Possessions, the East Indies including Ceylon, Singapore, and Hong Kong, took 23,520,150*l.*; Australia 11,858,679*l.*, a falling off from 1863; the North American Colonies 5,611,276*l.*, and the West Indies, 2,659,778*l.* Of the foreign countries, the United States of America maintain the first rank, taking to the value of 16,704,080*l.*; the Hanse Towns are second with 13,373,131*l.*; France took only to the amount of 8,200,760*l.* a decrease of 452,549*l.*; Holland next, 6,895,463*l.*; then Egypt with 6,070,221*l.*, an increase of more than a million and a half; and then Italy for 5,601,345*l.*, a decrease of nearly 300,000*l.* from the preceding year.

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20. Colonial Trade.—The number and tonnage of vessels that entered and cleared from the various ports in the United Kingdom in the year 1864, from and to the British colonies, were—*Inwards*, in England, British, 4,368 sailing vessels, tonnage 1,986,558; steam vessels, 662, tonnage 225,970; foreign, 569, tonnage 286,186. In Scotland, British, 426 sailing vessels, tonnage 231,553; and 12 steam vessels, all from Glasgow, tonnage 12,090; foreign, 38 sailing vessels, tonnage 18,427; and 2 steam vessels, tonnage 1,206. In Ireland, British, 250 sailing vessels, tonnage 109,943; foreign, 38 sailing vessels, tonnage 14,654. In the Isle of Man and Channel Islands, 28 sailing vessels, tonnage 4,134; foreign, none. *Outwards*, from England, British, sailing vessels, 4,375, tonnage 2,047,759; steam vessels, 728, tonnage 262,742; foreign, sailing vessels, 489, tonnage 214,091; steam vessels, 2, tonnage 681. From Scotland, British, sailing vessels, 563, tonnage 312,155; steam vessels, 78, tonnage 35,543; foreign, sailing vessels, 19, tonnage 7,965; steam vessel, 1, tonnage 450. From Ireland, British, sailing vessels, 121, tonnage 54,798; foreign, sailing vessels, 23, tonnage 7,620. From the Isle of Man, none; and from the Channel Islands, 54 sailing vessels, tonnage 7,121. The total number of British ships entered inwards was 5,746, tonnage 2,559,628—a decrease of 319 vessels, and 11,253 tons from the return of 1863; of foreign there were 647 vessels, tonnage 320,873,—a decrease of 35 vessels, and 20,695 tons. Of British ships cleared outward, there were 5,919, tonnage 2,720,118, — a decrease of 432 vessels, and 126,485 tons; of foreign vessels there were 531 vessels, all sailing vessels, tonnage 229,676,—a decrease of 187 vessels, and 99,411 tons, from the previous year.

21. Coasting Trade.—The number and tonnage of vessels that entered and cleared coastwise, during the year 1864, was, to various ports in England, including their repeated voyages—*Inwards*, British sailing vessels, 85,186, tonnage 6,599,510; steam vessels, 17,739, tonnage 4,801,520; foreign sailing vessels, 347, tonnage 61,863; steam vessels, 2, tonnage 710; foreign, 347 sailing vessels, tonnage 61,863; steam vessels, 2, tonnage 710. In Scotland, British, 13,218 sailing vessels, tonnage 890,316; steam vessels, 6,133, tonnage 1,432,608; foreign, sailing vessels, 34, tonnage 3,025. In Ireland, sailing vessels, 19,259, tonnage 1,507,308; steam vessels, 6,577, tonnage 2,119,317; foreign, 3 sailing vessels, tonnage 509. Isle of Man (there were none from the Channel Islands), sailing vessels, 1,556, tonnage 94,896. There were no foreign steam vessels, either inwards or outwards, to or from Scotland, the Isle of Man, or the Channel Islands. *Outwards*, from various ports in England, British, sailing vessels, 100,153, tonnage 7,820,123; steam vessels, 17,437, tonnage 4,618,757; foreign, sailing vessels, 259, and no steam vessel. From Scotland, 16,249 sailing vessels, tonnage 1,069,586; foreign, 38 sailing vessels, tonnage 5,253. From Ireland, 6,658 sailing vessels, tonnage 433,237; foreign, 43 sailing vessels, tonnage 6,131; and 1 steam vessel of 197 tons. From the Isle of Man, 766 sailing vessels, tonnage 52,293. Total—*Inwards*, British, 150,068 vessels, tonnage 17,472,268; foreign, 386 vessels, tonnage 66,107. *Outwards*, British, 154,092 vessels, tonnage 17,642,666; foreign, 341 vessels, tonnage 55,390; showing a decrease in the inward entries of 770 British vessels, and 112,812 tons; and of foreign, 69 vessels, and 1,181 tons; and outwards an increase of 42 British vessels, and 111,326 tons; and a decrease in foreign of 65 vessels and 1,898 tons.

22. RETURN of the SHIPPING employed in the Trade of the United Kingdom, exhibiting the NUMBER and TONNAGE of VESSELS that Entered Inwards and Cleared Outwards (including their repeated Voyages), separating British from Foreign Vessels, also Steam from Sailing Vessels, and distinguishing the Trade with each Country, in the Year 1864. [Sa. is for Sailing Vessels; St. is for Steam Vessels.]

COUNTRIES.		INWARDS. British. Ships.	Tons.	Foreign. Ships.	Tons.	OUTWARDS. British. Ships.	Tons.	Foreign. Ships.	Tons.
Russia	St.	198	118,788	11	8,970	196	118,723	12	11,486
	Sa.	2,151	482,728	1,694	374,101	1,554	347,892	964	201,773
Sweden	St.	101	46,598	36	10,942	79	38,360	32	9,671
	Sa.	355	66,188	2,316	451,796	278	51,239	1,719	328,685
Norway	St.	50	15,509	18	6,638	51	16,532	45	12,140
	Sa.	354	22,529	2,764	458,854	195	19,264	2,714	481,549
Denmark	St.	141	70,879	10	3,015	107	44,691	22	7,258
	Sa.	179	28,154	1,611	134,455	708	121,763	4,315	507,473
Prussia	St.	233	106,881	35	13,474	195	89,344	35	12,756
	Sa.	966	151,364	1,487	264,909	780	132,055	1,126	209,611
Germany	St.	931	366,378	261	169,653	942	369,491	210	88,639
	Sa.	1,486	274,047	1,414	185,372	1,417	251,165	1,394	162,886
Holland	St.	1,407	454,103	253	73,682	1,249	387,674	227	67,103
	Sa.	1,167	167,811	1,179	147,367	983	134,368	481	38,641
Belgium	St.	705	187,699	464	81,146	659	176,870	378	66,996
	Sa.	629	74,347	564	117,494	485	41,204	70	9,928
Channel Isles	St.	522	93,398	.	.	522	93,910	.	.
	Sa.	1,185	121,167	44	4,666	775	60,268	1	112
France	St.	3,878	857,131	323	49,273	3,483	785,539	74	25,844
	Sa.	4,522	570,236	5,409	536,258	4,674	573,810	4,342	345,421
Portugal	St.	144	63,595	9	2,972	167	65,547	8	2,374
	Sa.	1,078	146,876	174	24,757	551	85,174	308	56,375
Spain	St.	106	44,311	120	53,954	72	30,105	123	55,549
	Sa.	904	178,153	495	117,402	1,279	250,357	941	193,605
Gibraltar	St.	45	30,057	.	.	63	38,408	2	681
	Sa.	30	8,238	13	3,200	282	45,722	33	10,637
Italian States	St.	141	103,112	.	.	161	129,144	9	6,276
	Sa.	404	71,546	415	111,521	779	202,212	1,225	352,668
Malta	St.	3	1,779	.	.	27	28,916	.	.
	Sa.	28	10,390	9	2,511	210	69,076	129	42,836
Ionian Isles	St.	27	15,701	.	.	5	2,955	.	.
	Sa.	37	6,647	11	3,399	47	10,878	38	13,265
Greece	St.	4	2,887	.	.	3	1,737	.	.
	Sa.	47	7,344	13	2,690	30	6,867	27	7,579
Turkey	St.	74	73,473	1	357	71	72,163	1	19
	Sa.	317	84,548	265	80,494	258	64,800	254	76,441
Wallachia & Moldavia	St.	.	.	.	.	1	467	.	.
	Sa.	52	11,519	113	25,552	32	6,189	21	4,056
Syria	St.	.	.	.	.	2	2,040	.	.
	Sa.	12	2,944	1	142	13	3,544	13	3,002
Africa	St.	211	214,780	2	1,848	194	193,525	9	3,569
	Sa.	603	174,073	197	57,303	899	310,392	504	154,476
Asia	St.	14	19,942	.	.	42	25,454	1	564
	Sa.	1,334	1,065,384	140	100,987	1,081	1,386,571	187	107,093
America:—									
British N. Colonies	St.	47	58,620	.	.	51	64,411	.	.
	Sa.	1,646	956,851	356	184,694	1,077	573,591	104	45,301
British W. Indies	St.	28	20,907	2	1,606	87	34,103	1	450
	Sa.	896	271,567	93	30,936	922	292,106	81	26,718
Foreign W. Indies	St.	27	47,143	.	.	49	65,852	1	200
	Sa.	380	124,975	308	82,988	487	178,948	514	159,263
United States	St.	242	345,384	2	1,370	230	337,275	45	81,087
	Sa.	371	257,327	1484	394,325	417	321,180	385	401,135
Central and SthrnStates	St.	44	48,159	.	.	38	41,619	1	369
	Sa.	744	274,154	374	109,778	957	368,838	363	121,731
Falkland Isles	Sa.	4	949	.	.	4	1,284	1	632
The Whale Fisheries	St.	6	2,314	.	.	7	2,671	.	.
	Sa.	23	6,456	.	.	18	5,292	.	.
Total		31,233	9,028,100	23,490	4,486,911	30,545	9,173,575	23,690	4,515,923

23. British Shipping.—On December 31, 1864, the number of sailing vessels registered in the various ports of England and Wales was 7,290 under 50 tons, the tonnage of which was 229,577; and 12,916 above 50 tons, the tonnage 3,815,426. In Scotland the number was 1,073 under 50 tons, the tonnage 32,771; and 1,953 above 50 tons, the tonnage 575,778. In Ireland the vessels under 50 tons numbered 969, the tonnage 28,434; and those above 50 tons 1,054, the tonnage 165,317. In the Isle of Man and the Channel Islands, there were 485 vessels under 50 tons, tonnage 12,574; and 402 above 50 tons, tonnage 70,342. Total of sailing vessels, 26,142; total amount of tonnage 4,930,219,—a decrease of 197 vessels, and an increase of 199,002 tons over the preceding year. England and Scotland give the whole of the increase which is in the tonnage of vessels over 50 tons; there being a slight decrease in those below 50 tons, while in Ireland there is a decrease in both to the amount of 5,601 tons. The steam vessels were,—in England, 772 under 50 tons, tonnage 17,973; and 1,135 above 50 tons, tonnage 510,476. In Scotland, 106 under 50 tons, tonnage 2,709; above 50 tons, 295, tonnage 112,559. In Ireland, 47 under 50 tons, tonnage 1,263; above 50 tons, 127, tonnage 50,595. In the Isle of Man and Channel Islands, the number of steam vessels was 8, of which only one, of 16 tons, was under 50 tons, the tonnage of the other 7 was 1,690. Total of steam vessels 2,490, tonnage 697,281, an increase of 261 vessels, and of 100,425 tons. The number of vessels registered in the year, in British colonies and possessions, was,—in Europe, at Malta and Gibraltar, 239 sailing vessels, tonnage 40,433, and 5 steam vessels of 714 tons; in Africa, 301 sailing vessels, tonnage 45,179, steam vessels 6, tonnage 524; in Asia, 914 sailing vessels, tonnage, 207,432, and steam vessels 44, tonnage 10,915; in Australia, 1,598 sailing vessels, tonnage 156,427, steam vessels 146, tonnage 16,990; of these, 313 sailing vessels and 18 steam vessels, with a total tonnage of 15,066, belong to New Zealand; in the North American colonies, 7,353 sailing vessels, tonnage 848,650; steam vessels 204, tonnage 32,537—a large increase over 1863; and of the total, 3,648 vessels, with a tonnage of 360,788 were furnished by Nova Scotia; in the British West Indies there were 1,288 sailing vessels, tonnage 89,501; steam vessels 21, tonnage 6,175; of which 641 sailing vessels, tonnage 51,076, and 19 steam vessels, tonnage 5,381, belonged to the Bahamas. The total of colonial registered vessels, was 12,159, tonnage 1,455,477—an increase of 1,239 vessels, and 166,122 tons, over 1863. The total number of British and colonial vessels, sailing and steam, was 40,791, and the total tonnage 7,082,977. In addition there were 216 foreign-built vessels, tonnage 128,761, registered at various ports of the United Kingdom.

24. British Fisheries.—The Fishery Commissioners report that on the whole the herring fishery of 1864 was not prosperous, though at some places the catch was large, and the winter fishery was unsuccessful from the boisterous weather. The total quantity of barrels cured was 643,650, branded 217,392, and exported 364,507 barrels, a decrease in the exportation of 43,254 barrels. The greatest part of the export was to the continent, as the demand in the West Indies and America has fallen off, and what demand there is is fully supplied by the British Colonies in North America. The cod and ling fishery also shows a decrease, there were but 107,758 cwt. cured, and 7,963 barrels in pickle, against 129,725 cwt. cured, and there were 46,461 cwts. exported, a decrease of 6,275 cwts. In the year 1864 there were 13,331 boats engaged in the fishery, of which the united tonnage was 98,522, the number of men and boys employed was 43,484, with 1,026 fish-curers, 1,816 coopers, and 44,426 other persons in various capacities. The value of the boats was 328,136*l.*, of the nets 472,566*l.*, of the lines 74,953*l.* a total of 875,655*l.* This return only applies to Scotland and the Isle of Man.

25. Fisheries, Ireland.—The report of the Commissioners of the Deep Sea and Coast Fishery, Ireland, states that on January 1, 1864, there were 10,607 vessels registered, with 41,390 men and 3,870 boys, a decrease of 768 vessels, 3,339 men, and 2 boys, since January, 1863. The weather of the year had been unfavourable, and the report states that in almost all the fishing stations the boats and gear were deteriorating. The chief exceptions were Arklow and Howth, at both of which the oyster and herring fishing had been productive, and had been pursued by the fishermen with great energy. Some attention had been paid to planting oyster beds. Between May 1863 and June 1864 licenses were granted for five such, including a total area of 2,612 acres; in the whole there are 7,796 acres so appropriated.

26. Vessels Built, &c.—In 1864 there were built and registered in the United Kingdom 713 timber sailing vessels, tonnage 146,783; 154 iron sailing vessels, tonnage 125,716; 32 timber steam vessels, tonnage 2,393, and 342 iron steam vessels, tonnage 156,981; a total of 1,243 vessels, tonnage 432,873, an increase of 83 vessels, and 71,886 tons over 1863. The ships built in British possessions, and registered as British, were 813, with a tonnage of 243,345, of these 4 were of iron, built in Australia, tonnage 174, and 1 in the East Indies, tonnage 115. The number of colonial-built vessels, registered in British ports, was 53, tonnage 45,475, all from North America, giving an average of more than 800 tons. There were 78 sailing vessels and 27 steam vessels, of an aggregate tonnage of 10,573, broken up in the course of the year.

27. Wrecks.—The Board of Trade returns state the total number of wrecks in the year 1864 as 668, the tonnage of which was 175,763, a decrease of 69 vessels, but an

increase of 3,572 tons. The Annual Report of the National Life-Boat Institution states that the wrecks occur often it is feared "from the carelessness of seamen," and "from the imperfect equipment of our merchant-vessels." The life-boats of the society were instrumental in saving the lives of 432 persons, and they granted rewards to the crews of shore-boats, &c., for saving 266 others, a total of 698; the sum expended in rewards for services to shipwrecked crews, coxswains' salaries, and quarterly practice of the boats' crews, amounted to 1,539*l.* During the year 34 new life-boats had been provided, some to replace losses, and there was expended altogether on the objects of the society the sum of 22,697*l.* The number of lives rescued during the year by the coast-guard was 598, and the amount of property saved was 740,789*l.* The Wreck Register for 1864 states the total number of casualties off our own coasts as 1,741, of which 1,434 were known to have been British ships, and 1,095 of the whole number were employed in the coasting trade. The total loss of life had been only 516, while upwards of 5,000 lives had been placed in danger. The colliers as usual furnished the greatest number of casualties, and there were only 91 to ships over 600 tons burden, and only 136 to steam-vessels of all sizes.

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28. BRITISH SPIRITS.—In the year 1864 there were distilled in the United Kingdom 28,464,647 gallons of proof spirits, an increase of 3,379,411 gallons over that of 1863, and of this 22,245,755 gallons were put into bond, 11,095,369 remaining in bond on December 31. The quantity entered for home consumption was 21,030,582 gallons, of which 11,098,252 gallons were taken by England, 5,014,121 gallons by Scotland, and 4,090,119 gallons by Ireland, the duty on which amounted to 10,101,246*l.*, and 5,041,714 gallons were permitted for exportation. During year the Excise office sold 62,211 gallons the of methylic alcohol, and 613,190 gallons of methylated spirits were sent out by persons licensed to sell the same.

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29. COTTON.—The total amount imported in 1864 was 893,304,720 lbs. against 660,583,784 in 1863, and 214,703,304 lbs. were exported, a decrease of 26,650,192 lbs. from the exports of the previous year. Of the total, 14,148,064 lbs. came from the United States, more than double that of the previous year; 42,117,264 lbs. from the Bahamas and Bermudas, of course, from the United States also; 25,539,024 lbs. from Mexico; 1,223,264 lbs. from British West Indies; 6,500,368 lbs. from New Granada and Venezuela; 38,017,504 lbs. from Brazil; 21,595,840 lbs. from the Mediterranean; 125,493,648 lbs. from Egypt; 506,527,892 lbs. from British possessions in the East Indies; 86,157,008 lbs. from China; 9,404,304 lbs. from Japan; and 16,581,040 from other countries.

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30. WOOL.—The total quantity imported in 1864 was 206,473,045 lbs., an increase of 29,095,381 lbs. over that of 1863; and of this, 150,539,306 lbs. were exported. Of the total, 99,037,459 lbs. came from British Settlements in Australia; 20,425,355 lbs. from British Possessions in the East Indies; and 19,880,805 lbs. from British Possessions in South Africa. Spain sent 712,741 lbs.; Germany, 9,208,550 lbs.; other countries in Europe, 32,187,681 lbs.; South America, 19,302,932 lbs.; other countries, 5,718,122 lbs. A total of 139,343,619 lbs. from British Possessions, and 67,129,426 from foreign countries; upwards of two-thirds coming from British Possessions, on the increased quantity, although alpaca wool is included in this return, of which the whole is foreign.

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31. SUGAR.—The total quantity of raw sugar imported in 1864 was 10,767,538 cwts., of which 5,187,997 cwts., something less than half, were from British Possessions. Although the total importation was only 43,016 cwts, in excess of that of 1863, the computed valuation was 14,404,150*l.* against 11,530,242*l.* in 1863. The quantity retained for home consumption was 8,937,798 cwts.

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32. TEA.—The importations in 1864 amounted to 124,359,243 lbs., of which the computed value was 9,438,760*l.*, and of which 88,599,235 lbs. was retained for home consumption.

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33. MALT.—In the year ending Dec. 31, 1864, there were charged with duty, in England, 43,975,430 bushels of malt; in Scotland, 2,017,242 bushels; and in Ireland, 2,551,350 bushels; a total of 48,544,122 bushels, on which the duty charged was 6,582,362*l.* Of the total amount consumed, 28,174,182 bushels were by common brewers, 7,594,969 bushels by victuallers brewing their own beer, 3,218,476 bushels by persons licensed to sell beer to be drunk on the premises, and 358,427 bushels by persons not so licensed. The number of persons licensed as brewers was 34,679, of whom 31,017 were for licenses for quantities not exceeding 1,000 barrels, and only two for quantities exceeding 500,000 barrels. The total amount of license duty was 363,014.

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34. BREWERS AND BEER.—A return for the year ending at Michaelmas 1864 states the number of brewers in the United Kingdom at 2,508, the number of licensed victuallers at 93,751, of persons licensed to sell beer to be drunk on the premises at 41, 522 in England, and of persons licensed to sell beer not to be drunk on the premises at 2,784. The total quantity of beer exported in the year ending Oct. 31, 1864, was 472,375 barrels, of the declared value of 1,739,472*l.*; of which England furnished 415,302 barrels; Scotland, 55,897 barrels; and Ireland 1,176 barrels. The West Indies took 24,836 barrels, Australia and New Zealand 129,551, and India maintained its position in the list of customers by

taking 139,672. Our beer found its way to Madagascar, Japan, Siam.

35. COALS.—The coals, cinders, and culm shipped and sent coastways to other ports of the United Kingdom rose to 10,970,711 tons in the year 1864, an increase of 382,000 tons over the previous year. 3,116,703 tons of coal were brought coastwise into the port of London, and 2,359,723 tons by inland navigation and land carriage, making in all 5,476,426 tons, an increase of 349,000 tons over the previous year, but the increase was entirely in the quantity arriving by inland navigation and land carriage. 8,809,908 tons of coal, cinders, and culm, of the declared value of 4,165,773*l.* were exported from the United Kingdom to foreign countries and the colonies in the year: this is an increase of 534,000 tons over the previous year.

36. BANKS.—On the 1st of June, 1864, there were in England and Wales, besides the Bank of England with its 11 branches, 140 private banks of issue with 208 branches, 61 joint-stock banks of issue with 441 branches, 138 private banks not of issue with 64 branches, and 56 joint-stock banks not of issue with 303 branches, besides 4 branches in Scotland, a branch in Ireland, and 14 branches abroad. For Ireland the return gives 6 joint-stock banks of issue with 191 branches, 4 joint-stock banks not of issue with 6 branches, and 4 private banks not of issue. For Scotland, 13 joint-stock banks, all banks of issue, and having 594 branches.

IV.—CRIME, POLICE, AND LAW.

37. CRIMINAL OFFENCES, SCOTLAND.—The returns of criminal offenders in Scotland, for 1864, show that the total number of persons committed for trial, or bailed, for the year were 3,212, of whom 2,302 were males and 910 females, a decrease from 1863 of 179 males and 13 females. Of the total 690 could neither read nor write, and 1,825 could only read and write imperfectly, 591, the same number as last year, could read and write well, 91 had received a superior education, and 15 were unaccounted for. As to the offences, they are thus classed in the tables:—Offences against the person, 954; against property, committed with violence, 401; against property, without violence, 1,525; malicious offences against property, 36; forgery and offences against the currency, 62; other offences not included in the foregoing classes, 234; showing a decrease from the previous year in every class except in that of offences against the person, in which the increase was 132, and a decrease on the whole of about 6 per cent. Of the 3,212 offenders 631 were discharged without trial; 2,581 were tried, and of these 2,359 were convicted, 14 were outlawed, 6 were found insane on trial or arraignment, and detained, 37 were found not guilty, and 165 not proven. Of those punished, 2 males were found guilty of murder and executed, 1 was sentenced to penal servitude for life, and 196 for periods varying from 15 years to 3 years; 1,291 to imprisonment for from 2 years to more than 1 month; 658 to 1 month and under; 29 sent to reformatory schools, and 172 to be whipped, fined, and discharged on sureties. Lanarkshire furnished 469 males and 209 females to the list of offenders. Edinburgh 262 males and 144 females, but both show a decrease from 1863, while Argyle, Ayr, Berwick, Bute, Clackmannan, Dumbarton, Haddington, Kinross, Linlithgow, Selkirk, Sutherland, and Wigtown, all show an increase, amounting together to 29 per cent., over the preceding year.

38. POLICE, SCOTLAND.—On March 15, 1865, the police of Scotland consisted of 966 men and officers for the counties, an increase of 13 from the previous year, giving 1 for every 1,888 of the inhabitants; and 1,737 for the burghs, an increase of 39, giving 1 to 678 of the inhabitants. All the counties are now reported as being provided efficiently, and all the burghs with a population over 5,000, except Dumfries, but there are 16 of the smaller burghs still reported as inefficient. The number of vagrancy cases reported by the constabulary in the year was 59,254, including 12,263 children, a decrease on the total of 2,690. But the report states that the actual number of vagrants is probably not more than 20,000, as the same persons are reported from different places, and frequently in consequence of changing their names and appearance are returned more than once.

39. The *Metropolitan Police* comprises a commissioner, two assistant-commissioners, a receiver, a surveyor, with a staff of clerks and servants, and the expenses of the whole establishment amounts to 13,676*l.* The police force, on Jan. 1, 1865, consisted of 23 superintendents, 211 inspectors, 785 sergeants, and 6,172 constables, the pay, clothing, etc., of whom amounts to 387,747*l.* The total expenditure of the establishment for the year was 560,864*l.*; and the total receipts, including a balance of 78,030*l.*, were 662,244*l.* The amount received from the parishes at 6*d.* in the pound, on an estimated rental of 14,183,098*l.*, was 354,627*l.*; from the Treasury, 118,209*l.*, the other items of receipts are for special services at the British and other Museums, Houses of Parliament, dockyards, &c. &c.

V.—Poor Laws, Population, etc.

40. Summary of the Amounts Expended for In-maintenance and Out-door Relief, during the Half-Year ended at Lady-day, 1865, in 655 Unions and Single Parishes, under Boards of Guardians.

Divisions and Union Counties.	Unions and Single Parishes.	Number of Parishes.	Population, 1861.	Cost of In-maintenance and Out-door Relief.		
				In-maintenance.	Out-door Relief.	Total.
I.—The Metropolis.				£.	£.	£.
1. Middlesex (part) .	28	162	2,029,192	128,325	76,451	204,776
2. Surrey (part) . .	9	17	579,748	28,210	25,256	53,466
3. Kent (part) . . .	2	11	193,427	7,336	11,425	18,761
Totals . .	39	190	2,802,367	163,871	113,132	277,003
II.—South-Eastern.						
2. Surrey (part) . .	11	136	258,946	10,045	23,276	33,321
3. Kent (part) . . .	26	418	543,549	22,139	43,086	65,225
4. Sussex	22	287	341,827	15,210	37,820	53,030
5. Southampton . .	26	345	455,587	19,244	47,862	67,106
6. Berks	12	240	205,625	7,896	22,994	30,890
Totals . .	97	1,426	1,805,534	74,534	175,038	249,572
III.—South-Midland.						
1. Middlesex (part) .	6	58	187,325	8,214	11,840	20,054
7. Hertford	12	165	177,452	6,617	20,492	27,109
8. Buckingham . . .	7	195	147,186	4,138	21,264	25,402
9. Oxford	9	297	171,057	5,590	21,999	27,589
10. Northampton . .	12	332	230,964	5,173	30,910	36,083
11. Huntingdon . . .	3	88	59,137	1,456	7,228	8,634
12. Bedford	6	138	140,479	3,782	15,857	19,639
13. Cambridge . . .	9	174	181,552	5,872	27,638	33,510
Totals . .	64	1,447	1,295,152	40,842	157,228	198,070
IV.—Eastern.						
14. Essex	17	372	379,699	16,179	46,334	62,513
15. Suffolk	17	531	335,409	8,532	38,259	46,791
16. Norfolk	22	741	427,122	13,708	52,386	66,094
Totals . .	56	1,644	1,142,230	38,419	136,979	175,398
V.—South-Western.				£.	£.	£.
17. Wilts	18	315	236,027	7,310	33,553	40,863
18. Dorset	12	287	182,193	3,491	23,611	27,102
19. Devon	20	474	589,159	11,385	60,985	72,370
20. Cornwall . . .	13	221	362,409	5,285	23,517	28,802
21. Somerset . . .	17	495	463,286	11,069	52,584	63,923
Totals . .	80	1,792	1,833,074	38,540	194,520	233,060
VI.—West-Midland.						
22. Gloucester . . .	17	363	442,983	14,180	42,750	56,930
23. Hereford . . .	7	219	106,796	2,014	12,791	14,805
24. Salop	16	303	260,229	6,098	15,139	21,237
25. Stafford	17	277	768,371	14,212	36,919	51,131
26. Worcester . . .	11	233	294,901	5,559	19,595	25,154
27. Warwick	14	272	561,334	15,373	37,532	52,905
Totals . .	82	1,667	2,434,614	57,436	164,726	222,162

SUMMARY—*continued.*

Divisions and Union Counties.	Unions and Single Parishes.	Number of Parishes.	Population, 1861.	Cost of In-maintenance and Out-door Relief.		
				In-maintenance.	Out-door Relief.	Total.
VII.—NORTH-MIDLAND.						
28. Leicester . . .	11	350	243,636	6,801	22,052	28,853
29. Rutland . . .	2	67	23,479	710	2,749	3,459
30. Lincoln . . .	14	751	403,850	8,992	48,196	57,188
31. Nottingham . .	9	305	323,784	7,998	27,727	35,725
32. Derby . . .	9	277	293,223	4,738	15,964	20,702
Totals . .	45	1,750	1,287,972	29,239	116,688	145,927
VIII.—NORTH-WESTERN.						
33. Chester . . .	12	469	469,577	8,405	34,879	43,284
34. Lancaster . . .	28	454	2,453,910	69,986	175,534	245,520
Totals . .	40	923	2,923,487	78,391	210,413	288,804
IX.—YORK.						
35. West Riding. . .	35	610	1,420,107	23,586	87,371	110,957
36. East Riding . . .	10	373	273,674	5,661	15,753	21,414
37. North Riding . .	15	481	205,452	3,613	15,089	18,702
Totals . .	60	1,464	1,899,233	32,860	118,213	151,073
X.—NORTHERN.						
38. Durham . . .	15	314	542,125	6,488	32,101	38,549
39. Northumberland .	12	541	342,997	6,011	30,238	36,249
40. Cumberland . .	9	208	205,264	5,200	13,637	18,837
41. Westmoreland . .	3	110	60,946	1,559	4,099	5,658
Totals . .	39	1,173	1,151,332	19,218	80,075	99,293
XI.—WELSH.						
42. Monmouth . . .	6	164	196,977	3,653	19,936	23,589
43. South Wales . .	28	683	699,649	7,773	80,613	88,346
44. North Wales . .	19	372	414,483	4,756	62,805	67,561
Totals . .	53	1,219	1,311,109	16,142	163,354	179,496
TOTALS	655	14,695	19,886,104	589,492	1,630,366	2,219,858
Residue of the Kingdom	.	205	180,120			
Totals of England and Wales . . .	.	14,886*	20,066,224			

* Inclusive of the Scilly Islands.

41. POOR RELIEF, ENGLAND.—The annual Report of the Poor Law Board shows that the amount expended in the relief of the poor, in the year ending March 25, 1864, was less by 103,653*l.* than in the preceding year, though there was an increase in the metropolitan district of 8,093*l.* in the north midland of 5,757*l.*, in the northern of 4,831*l.*, and in the Welsh of 2,199*l.*; in all the others there was a decrease, that in the north-western, which includes Lancashire, was no less than 59,276*l.* For the half-year ending on the same day, the expenditure was 559,712*l.* for in-maintenance, and 1,691,259*l.* for out-door relief, making together 2,250,971*l.* This is a decrease of 214,004*l.*, or 8·7 per cent. as compared with the half-year ending at Lady-day, 1863. There was some decrease in every division of the kingdom except the metropolitan, and the increase there was very small; in the north-western division the decrease was 34·3 per cent.

42. POOR RELIEF, SCOTLAND.—In 1863-4 the unassessed parishes were further reduced from 120 to 114. The number of parishes that have poor houses, either singly or in combination, is 263, the poor houses 53, with accommodation for 12,895 inmates; 12 others are in progress, or resolved on, by 84 parishes alone, or in combination, which will increase the accommodation by 891. For the year ending May 14, 1864, the total expenditure had been 787,629*l.*, including 6,526*l.* on buildings, not authorized poor houses, and 40,629*l.* on authorized poor houses, an in-

crease of 51,601*l.* over the preceding year, but including the payment of 17,599*l.* borrowed in previous years on the security of the assessment, leaving 740,743*l.* as the expenditure on the poor. Of this sum 575,584*l.* was expended in relief of the registered poor, 26,936*l.* in the relief of casual poor, 30,601*l.* for medical relief, 81,738*l.* in management, 8,283*l.* in law expenses, and 46,856*l.* on buildings. The number of registered poor relieved in the year was 101,636, and the number on the register on May 14, was 78,682; on May 14, the number receiving in-door relief was 7,257; the number of the casual poor relieved in the year was 50,186; and 1,939 had been removed to England or Ireland; the number of insane, or fatuous poor, relieved in the year was 6,289, and of orphans, or deserted children, 6,587. The total receipts for the year was 776,455*l.*, of which 720,142*l.* was from assessment, 16,203*l.* from church-collections, and 40,110*l.* from mortifications and other sources.

43. Poor Relief, Ireland.—In the year ending Sept. 29, 1864, the total expenditure on poor relief was 596,465*l.*, of which 366,732*l.* were for in-maintenance; 21,473*l.* were for out-door relief, 97,654*l.* for salaries and rations of officers, and 110,606*l.* for other expenses. The expenses under the Medical Charities Act were 114,905*l.*, which, with expenses under the Burial Grounds Act, and the Registrations Acts, gave a total of 734,219*l.* an increase of 18,304*l.* over the expenditure of 1863. The amount collected had been 744,894*l.*, assessed on property of the net annual value of 12,754,954*l.* The total number relieved in the year had been 295,835, of whom 264,147 were relieved in the house, 31,266 out of the house, and 422 had been sent to blind or deaf and dumb asylums. The average daily numbers in the workhouses had been 56,535, and the decrease in the aggregate numbers from 1863 had been 21,789. The number admitted to workhouses in the year had been 151,157, there were 2,889 births, and 12,765 deaths. In the six months ending Sept. 29, 1864, there were relieved in the workhouses 1,743 able-bodied, and 598 not able-bodied, married couples, together with 52,253 other males, 60,664 females, and 51,790 children under 15. Under the Medical Charities Act, there had been issued 691,038 dispensary tickets, 197,797 tickets for visiting patients at their homes, and there had been 191,810 cases of vaccination: the total cost has been given above.

44. Births, Deaths, and Marriages, England.—In the year 1864, according to the Registrar-General's Returns, there were registered 739,763 *births*, 10,364 more than in 1863, the highest number yet reached in England. Of the total number 377,593 were males and 363,170 were females. In the year there had been 180,263 *marriages*, 6,895 more than in 1863; and there had been 495,520 *deaths*, 19,538 more than in 1863. Of the deaths 253,882 were of males, and 241,638 of females. Of the marriages the greatest number took place in the quarter ending Dec. 31; of the births in the quarter ending March 31; and of the deaths in the same quarter. The registrar's returns of deaths in 1863 record the death of 213 men and 430 women registered as 95 years old or upwards when they died; 21 of these men had reached 100 or upwards, and one at Chelsea was 109; 62 of the women had also completed a century of life or more, and one in the district of West Derby (Liverpool) was 112 years old. Five men and five women died in the year 1863 who, if the register may be relied on, were born before George III. was king. Of the 83 persons who had reached 100, 8 died in London, all of them on the Middlesex side. The north-western division, with its 2,900,000 people, had 7 of these centenarians in its bill of mortality; the west-midland division, with its 2,400,000, had 11; Yorkshire, with its 2,000,000, only 4; the south-eastern division, with its 1,847,000, had 5; but the south-western, with its 1,835,000, had 11; the Welsh, with its 1,300,000, had no less than 20; the south-midland, with nearly as large a population, 9; the north-midland, with 1,288,000, only 2; the northern, with 1,150,000, also 2; and the eastern counties, with 1,140,000, 4.

45. Births, Deaths, and Marriages, Scotland.—In the year 1864 there were 112,445 *births*, of which 57,485 were males and 54,960 were females, and of the total number 11,069 were illegitimate. The greatest number of births, 10,128, occurred this year in April, it is usually in May, which, however still numbered 10,056; the smallest recorded number, 8,682, was in September. The total of *deaths* was 74,303, an increase of 2,882 over those of 1863. Of the total, 36,957 were males and 37,346 were females. The greatest number of deaths, 7,673, occurred in January, the fewest, 5,062, as last year, in September. The number of *marriages* was 22,675, of which 3,192 took place in June, and 3,046 in December, the two months in which marriages are most frequent, while May takes the lowest rank as usual with 1,129 only. In the town districts the death-rate was 2·85 per cent., the birth-rate 3·86 per cent.; and the marriage-rate 0·87 per cent. In the rural districts the death-rate was 1·84, the birth-rate 3·24, and the marriage-rate 0·55. The illegitimate births were 9·6 per cent. of the total births in the town districts, and 10·1 in the rural districts.

46. Births, Deaths, and Marriages, Ireland.—The Registrar-General has completed the first year of civil registration of births, deaths, and marriages in Ireland. 136,643 births were registered in 1864, affording a ratio of 1 in 41·89 of the estimated population at the beginning of the year, which is estimated at 5,723,516, the census of 1861 giving 5,798,967. This ratio of 1 birth to 41·89 persons is about one-third less than the birth-rate of Great Britain in the same year. The deaths registered were 94,075, a ratio of 1 in 60·84 of the estimated population, again about a third less than the English and Scottish death-rate of the year.

The excess of births over deaths, therefore, so far as the registrar has recorded them, was 42,568, but 114,169 persons left the ports of Ireland in the year, stating to the enumerators that it was not their intention to return. In Great Britain the excess of births over deaths in 1864 was 282,385; and the total emigration from the United Kingdom to America and the colonies was, if we include 17,347 foreigners, 208,900. The number of marriages in Ireland was 27,376.

47. Population, Rate of Increase.—In Great Britain in the year 1862 a living child was born to every 28 persons. In France (1861), 1 child to every 37 persons; Austria (1862), one to every 42; Prussia (1860), 1 to every 25; Belgium (1861), 1 to every 32; Sweden (1859), 1 to every 29; Denmark and the Duchies (1862), 1 to every 31; Bavaria (1861), 1 to every 29; Hanover (1861), 1 to every 31; Spain and Balearic Islands (1861), 1 to every 25; Greece (1860), 1 to every 35.

VI.—Emigration and Colonial Statistics.

48. Emigration.—The Twenty-fifth Annual Report of the Emigration Commissioners states that there were 208,900 emigrants who left the United Kingdom last year, a decrease of 14,858 from 1863. Of the whole 162,650 cleared from English, 10,436 from Scotch, and 35,814 from Irish ports. Of the emigrants from England 95,344 were males and 67,306 females, of the emigrants from Scotland 6,065 were males and 4,371 females, and of the emigrants from Ireland 20,065 were males, and 15,749 females; a total of 121,474 males and 87,426 females. Of the total 8,371 were infants, and 18,806 were male and 14,780 female children under 14. The proportion of female to male emigrants is, on the whole, pretty well sustained in the case of the Australian colonies. Thus, last year 2,430 male and 2,259 female emigrants went to New South Wales, 4,285 male and 2,898 female emigrants to Queensland, 7,572 male and 6,337 female emigrants to Victoria, 1,585 male and 1,257 female emigrants to South Australia, 96 male and 203 female emigrants to Western Australia, 18 male and 32 female emigrants to Tasmania, and 6,868 male and 5,102 female emigrants to New Zealand. The emigration from Liverpool was 125,445 people, from London 24,420, from Plymouth 7,483, from Southampton 5,081, and from other ports in England and Wales 221, making a total of 162,650 from England. The emigration from Scotland consisted of 10,436 souls, of whom 10,409 sailed from ports in the Clyde. Ireland yielded 35,814 emigrants, of whom 25,660 sailed from Cork, 452 from Galway, 8,832 from Londonderry, and 870 from other ports. The native origin of the emigrants appear to be 56,618 English, 15,035 Scotch, 115,428 Irish, 16,942 foreigners, and 4,877 not distinguished, and their destination—147,042 to the United States, 12,721 to the North American colonies, 40,942 to the Australian colonies, to Jamaica 343, British Guiana 220, Trinidad 128, other West Indian settlements 1,215, the East Indies 1,267; China, 205, Japan 4, Mauritius 23, Western Africa, St. Helena, Madeira, Malta, &c., 364; the Cape of Good Hope 873, Natal 527, Mexico 43, the Falkland Islands 5, the Sandwich Islands 15, New South Wales 4,689, Queensland 7,183, Victoria 13,909, South Australia 2,842, Western Australia 299, Tasmania 50, New Zealand 11,970. Of the occupations of the female adult emigrants, 25,990 could not be classified in respect to occupation, 326 were set down as "mechanics," 10 were shopwomen, 24,435 were married women, 1,126 were milliners, dressmakers, and needlewomen; 950 were gentlewomen and governesses, and 14,250 were domestic and farm servants, nurses, &c. Of the male adult emigrants 10,251 could not be classified in respect to occupation; but the remainder may be described as follows: agricultural labourers, gardeners, carters, &c., 2,213; bakers 292, blacksmiths and farriers 251, bookbinders and stationers 30, boot and shoe makers 351, braziers, tinsmiths, whitesmiths, &c., 194; brick and tile makers, potters, &c., 59; bricklayers, masons, plasterers, slaters, &c., 1,049; builders 68; butchers, poulterers, &c., 146; cabinet makers and upholsterers 70; carpenters and joiners 1,337, carvers and gilders 25, clerks 784, clock and watch makers 79, coachmakers and trimmers 12, coal miners 46, coopers 120, cutlers 47, domestic servants 399, dyers 18, engravers 31, engineers 212, farmers 7,245, gentlemen, professional men, merchants, &c., 5,842; jewellers and silversmiths 54, general labourers 57,997, locksmiths, gunsmiths, &c., 14; millers, maltsters, &c., 101; millwrights 19, miners and quarrymen 3,266, painters, paperhangers, plumbers, and glaziers, 337; pensioners 45, printers 138, ropemakers 12, saddlers and harness makers 61, sail makers 10, sawyers 42, seamen 379, shipwrights 26, shopkeepers 797, general smiths 768, spinners and weavers 1,157, sugar-makers, boilers, &c., 31; surveyors 17, tailors 1,547, tallow chandlers and soap makers 2, tanners and curriers 74, turners 18, wheelwrights 74, and woolcomber 1.

49. New South Wales.—The population had increased from 367,495 in 1862 to 378,934 in 1863; the number of births in 1863 had been 15,679, of deaths 6,653; so that the increase chiefly arose from this source, the immigration having been only 4,689. The total quantity of land sold, under various conditions, was 356,059 acres, the total value 389,062*l.*, of which 180,226*l.* were paid, and the total quantity when rated at the end of 1863 was 7,778,277 acres. The expenditure for 1863 had been 2,064,209*l.*, the general revenue 1,550,047*l.*, and 649,116*l.* had been raised by loan. The total value of the imports had been 8,319,576*l.*; of the exports,

6,936,839*l.*, of which 1,262,274*l.* was for 14,791,841 lbs. of wool, a decrease in the value of 21,544*l.* from that of 1862, when the quantity was only 13,482,139 lbs.; gold furnished 2,361,949*l.* of the value of the exports, also less by 353,088*l.* than in 1862; of tallow there was 17,709 cwts. (against 71,281 cwts. in 1862), valued at 31,221*l.*; and of coal, 298,038 tons, valued at 220,181*l.* The number of vessels cleared outwards was 1,603, tonnage 511,373; entered inwards, 1,494, tonnage, 479,827. The stock on the land consisted of 262,554 horses, 2,032,522 horned cattle, 7,790,960 sheep, and 135,899 pigs. The total quantity of coal raised is stated as 433,889 tons, and the value as 236,230*l.*, which is only about 16,000*l.* for the 130,000 tons retained for home consumption. There are in the colony 976 schools with 46,810 scholars.

50. Victoria.—The population of Victoria at the end of 1864 was estimated at 604,858, of whom 347,954 were males and 256,904 were females; this included 30,119 Chinese, of whom only 8 were females in 1863, and 1,694 aborigines, of whom 648 were females. All the Chinese, with 114,980 men, 38,706 women, and 60,498 children, were settled or occupied on the gold fields; the number of actual miners was estimated at 85,000. The births in 1864 numbered 25,322, the deaths 9,202, and the marriages 4,529; the births and marriages had increased over 1863, while the deaths, notwithstanding the increase of population, were less by 300 than in 1863, and had been decreasing every year since 1860, when they numbered 12,061. The arrivals in Victoria in 1864 numbered 36,156, the departures 21,779. The quantity of land alienated to the end of 1864 was 5,908,212 acres. The land sales in 1863 comprised 295,180 acres, producing 450,646*l.*, besides about 200,000*l.* a year from lands leased as pasture. The total extent cultivated was 507,798 acres, of which about 149,000 were under wheat, 152,000 under oats, 8,000 under barley, 28,000 under potatoes, 96,000 under hay, 35,000 under green forage, and the remainder under minor crops, among which figure tobacco and the vine; tobacco occupying 623 acres, and producing 5,913 cwts., the vine occupying 3,076 acres, and producing 121,000 gallons of wine. The live stock amounted to 103,328 horses, 126,786 milch cows, 548,486 other horned cattle, 7,115,943 sheep, and 79,655 pigs. The total value of the imports for 1864 (approximately made up from the customs) was 14,409,028*l.*, of the exports, 13,850,895*l.*, both an increase over 1863, when the returns gave imports 14,118,727*l.*, exports 13,506,296*l.* Of the exports in 1864, gold was valued at 6,206,237*l.*, wool 3,247,128*l.*, tallow 60,230*l.*, hides and skins 102,684*l.* The revenue for 1863 had amounted to 2,979,682*l.*, the expenditure 2,899,672*l.*; the accounts for 1864 were not made up, but the revenue was estimated at 2,993,082*l.*, expenditure 3,011,054*l.* The public debt was 8,443,970*l.*, of which 7,933,170*l.* had been contracted for the purpose of constructing the Victorian railways, of which 251 miles have been opened. In 1863 the number of passengers carried was 3,063,052, the goods 410,000 tons, the total receipts 579,922*l.*; but these figures include some private lines, about 20 miles altogether, in the neighbourhood of Melbourne. The government also have the electric telegraph in their hands, of which there are 2,326 miles of lines, along which 250,380 messages were sent in the year 1864, of which 71,939 were government messages, sent free, and 29,122*l.* were received, the expenses being 35,976*l.* The number of post-offices was 475, through which 7,034,467 letters and 5,226,485 newspapers were sent, at an expense of 127,000*l.* (exclusive of the cost of the postal communication with Great Britain), while the receipts were 126,451*l.* The number of schools in 1863 was 1,019, of which 648 received public aid, the average number of scholars in the whole was 37,187 boys and 32,432 girls. Most of the Christian sects have Sunday schools, the average attendance in which was 19,718 males and 21,373 females. Melbourne University had 123 students in 1864, and to it is attached a national museum of natural history, to which, in the same year, 39,641 visitors were admitted free of charge; there is also a public library open free, visited in 1864 by 179,787 persons, and under the same roof is a national museum of art, visited in 1864 by 53,276 persons.

51. Queensland.—By the census of Jan. 1, 1864, the population was found to consist of 37,579 males, and 24,061 females, a total of 61,640. By the census of April 8, 1861, the numbers were 30,059, showing a rapid increase. The births in 1863 had been 2,221, of which 1,094 were males, 1,127 females; in 1862, the males had preponderated over the females, there having been born 903 males to 799 females. The deaths had been 1,275; the marriages, 774. The immigration had amounted to 17,450, of whom 5,848 were females; the emigration to 3,761, of whom 693 were females. The quantity of land sold in 1863 had been 62,948 acres, the amount realized 108,828*l.* The total quantity alienated from the foundations of the colony in Dec. 1859 had been 212,123 acres, of these 11,262 were under cultivation in 1863, against 6,086 in 1862, and the stock numbered 45,805 horses, 880,392 horned cattle, 5,672,400 sheep, and 7,351 pigs; the increased cultivation was chiefly in wheat, maize, potatoes, and cotton. The revenue for 1863, irrespective of loans, had been 295,215, the expenditure 355,791; the excess however, is more than covered by the land-orders given to immigrants which amounted to 95,607*l.* The imports had risen in 1863 to 1,713,263*l.* from 1,323,509*l.* in 1862, and the exports from 793,236*l.* to 888,381*l.*

52. South Australia.—At the end of 1863, the population of South Australia consisted of 72,109 males and 68,307 females, an increase of 5,087 over that of 1862; but it is estimated that the total population may be reckoned as 145,000 in consequence of the overland migration. The births in 1863

numbered 5,966; the deaths, 2,221; the immigration by sea brought 4,234 persons, and the departures, 2,892, left only an addition of 1,342, the increase of the population thus chiefly arising from the excess of births over deaths, and recent legislation has provided that one-third of the proceeds of the sale of waste lands are to be devoted to remedying the deficient supply of immigrants. In 1863 the land purchased from the crown amounted to 159,791 acres, for which the realized price was 181,084*l.*; the area of enclosed land on March 31, 1864, was 2,900,291 acres; at the same date in 1865, it was 3,499,814 acres. The land under tillage in 1863-4 was 559,968 acres, and in 1864-5 it held the same proportions, or about 4 acres for each inhabitant. In 1863-4 there were 335,758 acres under wheat, producing 4,691,919 bushels, an average of 14 bushels per acre; in 1864-5, the acreage 390,836, the produce 4,252,949 bushels, an average of only 11 bushels; seven-eighths of the wheat is reaped by machine. The season 1864-5 was generally bad for the agriculturist, all the cereals and the hay yielding less than in 1863-4, but one cause is said to have been the sowing of the land with cereals continuously, and the drought had also been detrimental. The vintage succeeded better; in 1863-4, there were 5,799 acres, yielding 606,365 gallons, while the produce in the following year was at least 1,000,000 gallons. The number of horned cattle continue to decrease; in 1863 they numbered 226,166, a decrease of 32,176 from the previous year; in 1864 they sank to 204,832; horses increased from 59,008 to 62,889; and sheep and lambs from 3,891,642 to 4,106,230. In 1863 the value of the imports was 2,028,279*l.*; of the exports, 2,358,817*l.*, the staple products of the colony forming five-sixths. The other Australian colonies are large customers, Victoria taking close upon 1,000,000*l.*, New South Wales, 337,478*l.*, and New Zealand, 153,062*l.*, chiefly in bread-stuffs, taking 39,722 tons of flour, and 932,272 bushels of wheat. The wool and minerals come principally to England; of wool, 15,566,787 lbs., valued at 715,935*l.*; of fine copper, 96,039 cwts.; of copper ore, 5,295 cwts.; nearly all the copper is now smelted in the colony. The revenue in 1863 amounted to 631,700*l.*, an increase over that of 1862 of 82,991*l.*; the land-fund contributing 237,162*l.*, and taxation being confined to customs duties. The expenditure was 635,205*l.* The report takes credit for the colony being least taxed in Australia, but the statement shows an expenditure above the revenue, and there is a debt of 866,850*l.*, though wholly contracted on account of reproductive works. There were open 57 miles of railway, over which 309,908 passengers and 200,831 tons of goods were carried; the receipts were 97,256*l.* the expenditure 79,476*l.* There were 1,064 miles of telegraph lines, along which 86,411 messages were transmitted, for which 8,695*l.* were received. Through the post-office had passed 1,817,379 letters and 1,254,893 newspapers; the income had been 19,019*l.*, the expenditure 19,964*l.* There are 240 schools, attended by 6,510 boys and 5,259 girls. Crime has decreased every year since 1859, when the total commitments were 281; in 1863 they were only 199; the convictions average 56 per cent. of the commitments. The charitable institutions (a hospital, a lunatic asylum, and an asylum for the aged and infirm poor, deserted children, &c.) are maintained by the government at an expense of 15,888*l.*

53. WESTERN AUSTRALIA.—The actual revenue for 1863 had been 69,408*l.*, the actual expenditure 69,004*l.* The population had increased by 1,534 persons of whom 350 were the excess of births over deaths, and the remainder chiefly convicts, of whom a hope is expressed that the British Government would send a larger supply, as their labours had been found very advantageous in the construction of roads and bridges. The imports had decreased, the exports had increased; the government schools were effective, and about 5,000 acres had been added to the cultivation, with a considerable increase of all kinds of stock.

54. TASMANIA.—In 1863 the population was 91,519, and the report complains of the slow advance made, through the departures exceeding the arrivals. The marriages had been 698, the births 2,998, the deaths 1,418, the arrivals 3,621, the departures 4,410. At the end of 1864 the population numbered 93,307. The imports of 1864 reached 908,265*l.* in value, an increase of 5,325*l.* over the previous year; the exports (including imports re-exported) 975,730*l.*, a decrease of 23,781*l.* The land under cultivation in 1863 was 267,173 acres, in 1864 it was returned as only 252,164 acres, or nearly 3 acres to every man, woman, and child in the colony; 60,186 acres were under wheat in 1864, the produce was estimated at 839,501 bushels. The produce of oats was 995,352 bushels, of barley 123,320 bushels; 35,210 tons of hay were produced, 34,827 bushels of English grasses, 30,438 tons of potatoes, 242,778 lbs. of tobacco, 128,874 bushels of apples. The live stock in the colony comprised 22,090 horses, 50,380 pigs, 89,801 horned cattle, a decrease of 645. The sheep are returned as having decreased in number from 1,880,815 in 1863 to 1,736,540 in 1864, a decrease so large that it has raised doubts of the accuracy of the statistics. The revenue for 1863 was 252,489*l.*, the expenditure 244,146*l.* There were 88 schools, with 4,607 scholars on the rolls, and an average daily attendance of 3,426, at a cost to the government of 11,484*l.* Through the post-office, over 936 miles of post roads, there were transmitted 860,127 letters and 1,043,292 newspapers, at a cost of 12,983*l.*, with receipts 10,710*l.*

55. CANADA.—The number of immigrants who arrived in 1864 by the St. Lawrence is stated by the Emigration Commissioners to have been 19,147, of whom 3,143 were English, 5,084 Irish, 2,320 Scotch, 2,262 Germans, 5,525 Norwegians, Swedes, and Danes, a large increase on their previous numbers, and 813 from other countries.

The deaths on the passage from the United Kingdom were 10, while of the foreigners there were 74. Of the total number, 17,937 were steerage passengers, of whom 991 were assisted emigrants, the larger proportion Scotch hand-loom weavers. There had also arrived 11,266 persons by the suspension bridge, 3,774 by Oswego, 633 by Lake Champlain, and 1,169 by Portland, a total of 34,779, of whom about 10,000 proceeded to the United States. Employment had been readily found for all immigrants during the year, and the demand for farm labourers and female servants far exceeded the supply. The reports from the governors of colonies are chiefly for 1863; that from Canada shows that the revenue had increased by 1,351,871 dollars, and a decrease of 228,873 dollars on the expenditure; the total revenue being 14,382,508 dollars, while the expenditure was still in excess, though less than in the previous years, being 14,909,182 dollars. The importations had amounted in value to 45,964,493 dollars, of which a full half was from the United States, but there was a decrease on the whole of 3,065,535 dollars, two-thirds of which was on the imports from the United States. The exports, on the contrary, had increased by about 8,000,000 dollars, the total amounting to 41,831,532 dollars. Much of the report is occupied with the measures taken for embodying the militia, the instruction issued for the rifle volunteers, who then numbered 25,010, the reviews, target practice, &c.

56. New Brunswick.—The immigration to New Brunswick in 1864 only amounted to 396, chiefly from Ireland. The colony was showing a marked increase of activity in almost every branch of provincial industry. The revenue for the year ending Oct. 31, 1863, was 183,450*l.* more than any amount ever before collected; while that for 1864 again rose to 220,300*l.* The expenditure for 1863 was 130,904*l.*; that for 1864 would be something larger, but was not ascertained precisely. The expenditure includes sums applied to the making and maintenance of roads, of which there are 2,200 miles of main-roads in the colony, besides many by-roads, some of which are very good. The government railway carried 3,064,406 passengers in the year, producing an income of more than 25,000*l.*, the greater half arising from goods traffic, and about 8,000*l.* of profit; on education the government expended above 20,000*l.*; and by the post-office they lost about 4,000*l.* as no fewer than 1,840,332 newspapers had to be delivered free, while there were but 833,625 letters, of which 9,739 were dead letters. Efforts were making to establish and drill a militia and volunteer corps, and a camp for exercise is assembled in the autumn.

57. Prince Edward Island.—This colony is also described as prospering; the harvest of 1863 was abundant—the war in the United States created a great demand for oats, prices consequently rose; and the ship-building trade was brisk. For some years the expenditure had exceeded the revenue, till in 1862 the public debt amounted to 54,803*l.* In 1863 the ad valorem duties on imports was raised from 7½ to 10 per cent., and this rise, though in operation only a part of the year, raised the revenue to 41,125*l.* exceeding that of 1862 by 15,496*l.* and being the highest amount raised in any previous year. The expenditure was 36,441*l.*; and the surplus reduced the debt to 50,119*l.* The value of the imports was 293,431*l.*; an increase, notwithstanding the heavy duty, of 82,191*l.* over that of 1862. The exports were valued at 209,472*l.*, but 100 vessels measuring 24,991 tons, and valued at 125,000*l.* have to be added, as the rigging and other materials for them are included in the imports. One-half the imports are supplied by Great Britain, and more than half the exports are to the United States. A volunteer force had been established, and hopes are held out that the legislature of the colony will grant sums to provide a sufficient militia and give more encouragement to the volunteers.

58. Vancouver Island.—The ports of this island are all free, and the value of the imports has increased every year. In 1863 the imports were estimated at 796,213*l.*, and the harbour dues only amounted to 3,563*l.* The revenue also increased though the taxes were light, that for 1863 exceeding that for 1862 by 26,343*l.* The roads and land communication are still represented as defective, but 18,000*l.* had been expended on them in the year. The condition of the European population is stated to be prosperous, and that pauperism is unknown, while that of the Indian population is lamentable from the amount of drunkenness and its attendant vices.

59. Mauritius and Seychelles.—According to the estimate on December 31, 1863, the population had increased, since the census of April, 1861, and was 323,254, but 15,000 immigrants had been introduced in the two years that had elapsed. The revenue for 1863 amounted to 518,278*l.*, about 26,000*l.* more than in 1862; the expenditure of the year was 482,524*l.*, but additional taxation was requisite to meet the interest and sinking fund on the railway loan, which amounted to 600,000*l.* The total cost of the military defences and garrison for the year had been 137,500*l.*, of which 31,000*l.* was defrayed by the colony. There had been no public works undertaken in the year, except on the railway, on which 575,913*l.* had been expended in the two years, though the report states many are required, as the public buildings are nearly all such as were built by the French for other purposes than those to which they are now applied: "The governor's usual residence was destined for a college, the barracks for a prison, the civil hospital for a barracks, the Protestant cathedral for a powder magazine, and the Coolie Orphan Asylumn for a mill for the manufacture of gunpowder. Even the building recently adapted temporarily for the Central Railway terminus was

in olden times a slave barracoon." Imports and exports had both increased; in 1862 the imports were valued at 1,926,255*l.*, in 1863 at 2,238,846*l.* The exports of 1862 amounted to 2,232,249*l.*, in 1863 to 2,661,098*l.* The sugar crops had been abundant, the value in 1862 being estimated at 2,232,249*l.*, and in 1863 at 2,494,556*l.* At the Royal College education is provided for 242 scholars, and there are 4,511 in the public schools, an unsatisfactory return; but there is much difficulty in affording it from the want of a common language, the immigrants coming from such various places. The report from the dependency of the Seychelles states that at the beginning of 1863 "they had been visited by a violent hurricane, the first ever known within the archipelago. Half of the town had been swept away by an enormous landslip from the overhanging side of the Trois Frères Mountain; all the crops of fruit had been lost, and a great number of cocoa trees, the staple cultivation of this island, had been destroyed by the gale; everything was stagnant, and the inhabitants were quite demoralized by the effects of this unprecedented disaster." Notwithstanding the calamity, the revenue of 1863 exceeded that of 1862 by 200*l.*, and the exports by 6,778*l.*, and in that of cocoa-nut oil alone the excess was valued at 6,019*l.* the storm having chiefly affected old plantations, while the more prolific ones had escaped its ravages; the great falling off was in timber. The public works undertaken were chiefly in remedying the injuries occasioned by the hurricane. The usual course of the river St. Louis having been blocked up, any ordinary fall of rain caused it to overflow, and to inundate the lower part of the town. Prisoners and labourers were employed for some months in removing the obstruction; 2,000 feet of mines had to be sunk through almost impenetrable granite, and 25,000 tons, with an immense amount of detritus had to be removed before the original bottom of the river was arrived at. This has been accomplished, the town is now secure, and the inhabitants were again building on the river banks. A new hospital was also in progress, and a pier for the improvement of the harbour is projected.

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60. JAMAICA.—The total revenue of the year ending September, 1862, was 291,164*l.*, of which 450*l.* was raised by loan; in 1863 the total revenue was 293,353, of which 5,000*l.* was by loan, showing a real increase of 2,452*l.* The total expenditure for 1862 was 292,470*l.*, and in 1863 it was 302,285*l.* The military defences of the island cost Great Britain 156,660*l.*, and the colony 2,845*l.* The total value of the imports in 1862 was 1,141,983*l.*, in 1863 it decreased to 1,087,529*l.*, the chief items of decrease being butter—16,162*l.*, and fish of all kinds—20,989*l.* The exports also decreased from 1,113,441*l.* in 1862 to 1,007,924*l.* in 1863; the chief articles of decrease were rum, 57,319*l.*; sugar, 83,746*l.*; and wood, 20,321*l.*; while there was an increase of coffee to the amount of 51,562*l.*, and of pimento to the value of 3,522*l.* The census taken in May, 1861, returned 213,521 males, and 227,743 females; of the total, only 13,816 were whites, the rest black or coloured. In the year ending Dec. 1863, 533 liberated Africans and 541 Coolies were introduced. There was church accommodation provided for 162,660 persons, of whom 128,063 generally attended; the Church of England having 36,300 attendants, the Wesleyans 36,730, and the Baptists 26,126. Education was provided for by 393 schools; of which the Church of England furnished 127 with 8,552 scholars, and the various dissenting bodies make up a total of 25,167 scholars. In 1862 there were 3,604 committals to gaol and 4,219 in 1863, a considerable increase, and principally for theft. There is a public hospital with a daily average of 176 patients; a lunatic asylum with a daily average of 151 inmates; reformatories for boys and girls, in 1863, receiving 146 boys and 87 girls; and there is an institution at Kingston for teaching nurses midwifery, in which 66 patients were admitted in the year, and three nurses obtained certificates of competency, while four were under training at the close of the year. In Turks' and Caicos' Islands the census of April 1861 showed a population of 4,372 souls; in Grand Turk, 2,265; Salt Cay, 761; and Caicos, 1,346; but complaints are made of the evils of squatting, which prevented the application of labour to profitable purposes which might be pursued, especially in the rearing of live stock and the growing of cotton. The regulation granting fee-simples of the salt-works on an agreement to pay 10 per cent. on the total produce had been carried into effect with advantage. The total revenue for 1863 had amounted to 11,272*l.*, exceeding the expenditure, 10,089*l.*, by 1,183*l.* In the year 600 refugees from St. Domingo sought shelter from the war raging there, most of them without any means of support. By means of a public subscription and some aid from the Government, a part were sent to Cape Hayti and St. Thomas, and the remainder were supported till they could leave or had obtained employment.

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61. BARBADOS.—The revenue in 1862 was 93,682*l.*, the expenditure 93,461*l.*; in 1863 the revenue was 102,572*l.*, the expenditure 104,795*l.*; the excess on both sides being partly caused by including in the public account the income from and the expenditure on the new waterworks, and the expenditure on the building of a new female prison, the erection of a bridge, and works in the careenage. The customs and tonnage duties showed a falling off, owing to the unfavourable circumstances of the year, producing only 50,945*l.* in 1863 against 51,430*l.* in 1862; and there was a deficiency of 40,000 gallons of rum in the consumption as shown by the excise duties, owing to the increased poverty of the labourers. This poverty, and the higher price of manufactured goods, especially cotton, had also had a marked influence on the attendance at church and chapel, which had been much less, the governor stating that the poor people disliked to come ill-dressed; and the attendance at the schools was also unsatisfactory.

Crime had also increased materially. The imports in 1862 had amounted to 913,141*l.*, in 1863 only to 878,208*l.*, of which 400,000*l.* was from the United States, and the value of the manufactured goods from England had lessened by at least a half, and the quantity by three-fourths. The exports in 1862 were valued at 1,067,612*l.*, in 1863 at 981,142*l.* The production of sugar had sunk from 46,078 hogsheads in 1862 to 42,436 in 1863, and the governor anticipates that the crop of 1864 will be worse. The tonnage entered inwards in 1863 was 124,073 tons, and of this 98,251 were British, while there had been a proportional decrease in that from the United States.

62. TRINIDAD.—The amount of the revenue had decreased in 1863. In 1862 it amounted to 199,372*l.*, in 1863 to 184,377*l.*; but this is mainly accounted for by a smaller special revenue having been raised for immigration purposes, only 22,247*l.* having been raised in 1863, while 41,651*l.* was the amount in 1862. The total disbursements had been 196,058*l.* in 1862, and 188,981*l.* in 1863, and of this 23,454*l.* was applied in diminution of the public debt. The crops of the two years had been more productive than in the two preceding years, and estimating the total produce in its equivalent of hogsheads of sugar, there were 107,113 hogsheads exported in 1860—61, against 124,343 in 1862—63. Active measures were in progress for effectively draining the town of Port of Spain, and for the improvement of the wharves. Additions and improvements were also being made in the roads and bridges, and a new road was in course of construction across the Caroni Savannah, to connect the separate road systems of the northern and southern divisions of the island. The lunatic asylum, the collegiate school, and other public institutions, had worked successfully.

63. GRENADA.—The population is increasing; the estimated number of souls on Dec. 31, 1863, being 35,230, against the Census return of 31,900; there had been an immigration of 1,350 persons; the remainder of the increase was from natural causes, the health of the colony having been good during 1862 and 1863. The total revenue for the year 1862 had been 19,572*l.*, that of 1863 was 21,106*l.*; the expenditure in 1862 had been 17,571*l.*, and 19,601*l.* in 1863. There were 25 schools, and in 1862 there were 1,584 scholars, and 1,824 in 1863; these schools are chiefly maintained at the public expense, and 500*l.* had been granted in 1862, and 900*l.* in 1863, but the results are said not to have been very satisfactory. The imports in 1862 were valued at 112,518*l.*, of which 92,798*l.* were from the United Kingdom and British Colonies, and 18,222*l.* from the United States; in 1863 they were valued at 90,074*l.* of which 81,166*l.* were from the United Kingdom and British Colonies, and only 8,171 from the United States. The exports in 1862 were valued at 87,860*l.*, of which 85,645*l.* were taken by Great Britain and her colonies, and 1,116*l.* by the United States; in 1863 they rose to 112,477*l.*, of which 109,559*l.* were taken by Great Britain and her Colonies, and only 33*l.* by the United States.

64. ANTIGUA.—The report from Antigua is a painful one. The native population is decreasing at the rate of 1 per cent. per annum. The deaths in 1862 were 1,738, and 1,734 in 1863, while the births were only 1,072 in 1,862, and 1,407 in 1863. Small-pox had committed great ravages, but a general vaccination having been promptly effected, the disease had been greatly mitigated. The chief cause, however, of the mortality was the improvidence of the labouring poor. The report states that "one-half of the labouring population live in what are called free villages." In these are some well-ordered cottages, belonging to tradesmen, small shopkeepers, &c.; but "in the majority of instances, especially in the villages at a distance from St. John, a plot of land purchased rarely exceeds 40 square feet in extent, and on a portion of this a wretched hovel is erected, often containing but one room, and that unfloored and imperfectly ventilated, and in which not unfrequently five or six persons, adults and children of both sexes, sleep together at night. These evils are greatly aggravated by the great scarcity of water, the villages being solely dependent for supply on the ponds in the neighbourhood, the water from which in a dry season is generally muddy, foul, and stagnant;" and, it is added, "the labourer seems insensible of the advantages which would accrue to himself and family from free ventilation, cleanliness, and an adequate supply of pure water, and would not willingly contribute his labours or his money for either of such purposes. It has been found impossible to induce those residing in the villages to give even a couple of days' work in cleaning the ponds in the immediate vicinity of their dwellings." This had to be done, therefore, at the public expense. The remedy proposed is to place these villages under the superintendence of a board of health, with powers to enforce their sanitary regulations. Pains and expense are not spared in ameliorating the condition of the labourer. Children under ten and labourers over sixty are provided with medical relief free of charge, and 7,456*l.* is expended annually in the support of poor-houses, hospitals, vaccinations, boards of health, &c. In 1863 there were 1,311 immigrants introduced at an expense of 7,374*l.* The state of the revenue was more satisfactory, the total in 1863 was 43,477*l.*, and the expenditure 37,478*l.* The imports in 1862 were valued at 183,353*l.*, in 1863 at 173,912*l.* The exports in 1862 were 14,961 hogsheads of sugar, 997 puncheons of rum, 6,403 puncheons of molasses; in 1863 there were 13,588 hogsheads of sugar, 939 puncheons of rum, and 6,018 puncheons of molasses. The number of scholars in the public schools in 1863 was only 4,408 an increase of 27 over 1862; but there are many private schools, and 5,106 children attend Sunday schools. Crime has increased; there were 595 commitments in 1863, against 443 in 1862, and the number of summary convictions before the police magistrate in 1862 was 2,638, and 2,758 in 1863.

65. TOBAGO.—The revenue for 1862 was 10,093*l.*; in 1863, in consequence chiefly of a reduction of the property tax, it fell to 8,278*l.*; while the actual expenditure for 1862 had been 10,205*l.*, and for 1863 it had been 9,251*l.*, but these deficiencies were expected to be of a temporary nature only. The importations of 1862 had amounted to 55,375*l.*, those of 1863 to 46,869*l.*, the falling-off in the importation of cotton goods being even greater in 1863 than in 1862. The value of the exports in 1862 was 75,428*l.*, those of 1863 were 48,961*l.* only, caused by short crop and the diminished value of colonial produce; the sugar crop of 1863 only reaching 52,922 cwts., but still the cultivation of the cane was progressing. In 1857 there were 60 sugar estates in cultivation, there are now 71, and of these 58 belong to resident proprietors. In 1862 252 liberated Africans were introduced, whose health and general conduct are stated to be highly satisfactory. Education extends, though slowly; the number of scholars in 1863 being 2,070 against 1,949 in 1861, and there was a marked decrease in crime.

66. ST. VINCENT.—The Report does not give the items, but states generally that the revenue of 1863 had exceeded that of 1862 by about 1,000*l.*; that the imports and exports were about the same as in previous years; the amount of sugar exported in 1863 being somewhat more than in 1862; the rum somewhat less, and molasses remained the same; that agriculture had improved; that the cultivation and export of arrowroot in 1863 had exceeded that of 1862 by about 400 barrels, and by May 1864 there had been 8,900 barrels shipped, against about 4,900 in 1863; that education on the whole was satisfactory, though there were fewer scholars in the public week-day schools, attributable to the poverty of the labouring class, owing to the low price of produce in preceding years, and a consequent rigid economy in the cultivation of plantations; and that there was but little crime.

67. ST. LUCIA.—The population on Dec. 31, 1863, was estimated at 28,135 souls, of whom 13,962 were males and 14,173 females; and of the whole, 925 were whites. The revenue in 1862 was 12,900*l.*; in 1863 it was 12,591*l.*, a deficiency owing to the low rates of produce and diminished imports. The imports were valued at 93,603*l.* in 1862, and at 69,583*l.* in 1863; the exports for the same periods being 87,991*l.* and 83,711*l.* The expenditure in 1862 had been 12,896*l.*, and 14,034*l.* in 1863, an excess partly owing to the necessity of substituting a police for the garrison withdrawn from the island. There had been little difference in the amount of the sugar-crop in the two years, but attention had been given to cotton, and 10,000 lbs. had been sent to England, and it was anticipated that the cultivation would be extended as the quality was good. Education had increased, especially in the Mico charity schools, in which 1,108 children were educated in 1863 against 979 in 1862, who are examined by an inspector from England, who reported very highly in their favour; the whole number of children receiving education in 1863 was 1683. There are hospitals at Castries, Soufrière, and Vieuxport, in which 340 Coolies and 10 Africans were admitted in 1863 of whom only 27 Coolies died; the admissions being considerably less than in 1862, the health of the emigrants having much improved as they became acclimatised.

68. MONTSERRAT.—The revenue for 1862 had been 4,490*l.*; that for 1863 only reached 3,891*l.*, in consequence of a reduction of the property-tax; in both years, however, the revenue was more than sufficient for the expenditure, which was 4,352*l.* in 1862, and 3,843 in 1863. No public works had been undertaken in 1863, but 500*l.* had been voted by the Assembly for the construction of a wharf at Plymouth, to facilitate the landing of passengers or cargo, which hitherto has been done by beaching the boats. The imports in 1862 were valued at 22,385*l.*, in 1863 at 20,089*l.*; the exports in the same periods at 14,883*l.* and 15,155*l.* The sugar crop of 1862 produced 904 hogsheads, that of 1863 gave 955 hogsheads; the cultivation of cotton had been prosecuted on a small scale successfully, and as there are large quantities of land well suited to the plant, it was hoped it might be extended, the only fears were the want of a steady supply of labour. On the whole the years had been healthy; small-pox had appeared, but was quickly checked, and 2,000 children were vaccinated. For the first time a registry of births, deaths, and marriages had been instituted, and the returns gave 313 births, of which 190 were illegitimate, 158 deaths, and 31 marriages, in a population of 7,645, according to the census of 1861.

69. ST. CHRISTOPHER.—The population, since the census of 1861, has continued to increase at the rate of about 250 souls per annum, but in 1862 there was an emigration of about 200, in consequence of a scarcity of employment. As in Montserrat, the registry of births and deaths has been instituted, and at the end of 1863 there were recorded 1,211 births, of whom 120 were white, 202 coloured, and 889 black, and of the whole 588 were illegitimate. The deaths numbered 949, of which 222 males and 194 females were of infants of one year and under, an undue proportion ascribed to the propensity of the labouring class to employ ignorant midwives rather than the medical aid offered gratuitously by the government. Of the total number of deaths 95 were of whites, 170 of coloured, and 684 of blacks. In 1862 the revenue was 22,292*l.*, and the expenditure 21,371*l.*; in 1863 the revenue was 21,972*l.*, and the expenditure 22,154*l.* The total value of the imports in 1862 was 166,872*l.*, of the exports 175,958*l.*; in 1863 the imports were 151,885*l.*, the exports 175,686*l.* The sugar crop of both years had been good, in 1862 affording 10,700 hogsheads, and 11,545 hogsheads in 1863, but the produce for 1864, owing to the long drought, was estimated in

June at only 6,000 hogsheads. Improvements had been effected in the means of education by the establishment of a grammar school, and there were 22 public schools, with an average attendance of 1,396 scholars.

70. BAHAMAS.—The blockade of the ports of the Southern States of America, by making these islands the resort of vessels about to run the blockade, greatly added to their prosperity and commercial importance. The imports in 1862 amounted in value to 1,250,322*l.*, a great excess over any previous year, and in 1863 they were estimated at 4,295,316*l.*; the exports in 1862 were valued at 1,007,755*l.*, and in 1863 at 3,368,567*l.* The lands, woods, and forests were greatly enhanced in value; the forests, which were crown property, became a source of emolument, the pine-woods affording timber, pitch, tar, turpentine, and rosin, all in great demand. The wages of labour rose considerably, and though cotton was successfully cultivated, it was not supposed that it could be profitably prosecuted with labour so dear if the price should be reduced. The revenue for 1863 was 75,511*l.*, and the expenditure, including some liquidation of the public debt, was 53,409*l.*, and the whole debt, which was 43,786*l.*, it was anticipated would be discharged by the end of 1864. Criminal offences had largely increased, and there was much sickness, yellow fever prevailing during the months of May and November. A quarantine hospital had been established on Athol Island, from which great benefit had been derived. Lighthouses had been built on the Berry Islands, and at Elbow Cay, Abaco, and are found to be very serviceable to the commerce of the islands.

71. VIRGIN ISLANDS.—Of this small group the revenue in 1862 was 2,013*l.*, and 1,753*l.* in 1863; the expenditure in 1862 was about the same as in 1863, namely, 1,850*l.* The imports in 1862 were valued at 7,724*l.*, and in 1863 at 8,875*l.*; the general exports of the two years were about alike, 11,400*l.*, but the discontinuance of working a copper-mine at Virgin Gorda occasioned the return for 1863 to be less than that of 1862 by the amount of the ore exported. Great efforts had been made during the last year to improve the means of education, and a successful result was anticipated.

72. BRITISH GUIANA.—The revenue for 1862 was 282,834*l.*; for 1863 it fell to 266,170*l.*, chiefly from a deficiency in the custom and rum duties. The expenditure of 1862 was 310,508*l.*; in 1863 it fell, chiefly through a less immigration from China, to 267,291*l.* The public debt amounts to 591,454*l.*, but of this 266,800*l.* is secured by the notes of planters given in payment for their proportion of the cost of introducing immigrants. The value of the imports in 1862 was 1,107,181*l.*, in 1863 it increased to 1,121,979*l.*; the value of the exports in 1862 was 1,365,295*l.*, and 1,679,385*l.* in 1863. There are 101 schools receiving public aid, in which 8,251 children received instruction in 1863, an increase of 624 over 1862, and there were 4,174 receiving instruction in other schools. A new court-house had been built at Essequibo, and satisfactory progress had been made in the construction of a sea-wall.

73. CEYLON.—The total population of all classes of inhabitants is returned for 1863 as 2,342,098; an excess of 262,217 over that of 1862. In 1863 there had been 23,581 marriages (almost as many persons as there were births), 48,589 births, and 30,024 deaths. The revenue was 952,790*l.*, an excess of 193,654*l.* over that of 1862; the total expenditure was 738,194*l.*, an increase of 111,540*l.* over the previous year, but still leaving a large surplus; and 28,523*l.* of the expenditure was upon roads, streets, and bridges. The imports were valued at 5,433,139*l.*, an increase over 1862 of 858,111*l.*; the exports were valued at 3,587,234*l.*, an increase of 973,217*l.*; the increased value of the imports was partly caused by the enhanced price of cotton goods, that of the exports by the larger quantity of coffee and cocoa-nut oil. The railway from Colombo to Kandy, 74 miles, was begun in March, 1863, and half the distance was expected to be opened in June, 1865. The pearl-fishery contributed 51,895*l.* to the revenue. Among the exports were 173 elephants ("got rid of" says the return), valued at 2,869*l.*, or 16*l.* 11*s.* 8*d.* each; and from 1854 to 1863 there had been destroyed 473 cheetahs and 1,009 bears, for which Government rewards were paid.

74. HONG-KONG.—The population has advanced from 123,511 in 1862 to 124,850 in 1863; and there was a falling off of Chinese emigrants, their number being 7,809. The revenue was 120,078*l.*, the expenditure nearly 3,000*l.* in excess, but some difficulty had arisen in the sale of land, or the revenue would have been increased by about 14,000*l.* There was a large increase of shipping, amounting to 216,000 tons, the number of ships entered being 1,822 of 894,924 tons burden. Waterworks and gas are being provided for the town, and the report draws attention "to the outward look of Victoria." It says "The many houses newly erected of sightly exterior, the extension of the praya or sea-road eastward, the increase of vegetation upon the public roads and around the private dwellings, the construction of the new government gardens, and an elegant drinking fountain . . . . . give an improved appearance to the city . . . . . assist its sanitary condition, and add to the general comfort of its inhabitants."

75. LABUAN.—As the value and success of this colony depends wholly on the coal, the report is almost entirely confined to that subject. It states that in 1863 there were raised 10,807 tons, principally from levels, but since the close of that year considerable progress had been made in sinking a pit to the largest vein of coal, which had been reached at a depth of 44 fathoms, where it was found to be not less than 10 feet in thickness, lying below two other beds of 5 feet and 3 feet 6

inches respectively. The coal had been used in the royal and merchant navy, and reported upon favourably, and a steamer of 1,000 tons burden was employed in carrying the coals to Hong-Kong. There is no doubt of there being good coal in the island, but there is much difficulty in obtaining suitable labourers. The local revenue amounted to 2,086*l.*, the expenditure (exclusive of the cost of troops) at 7,430*l.* The public works undertaken, but not completed, were the clearing and draining of a part of the plain adjoining the town, and the construction of about five miles of road through the jungle towards the coal mines. The roads and drives had been kept in good order by convict labour, the behaviour of the convicts being generally good.

76. GIBRALTAR.—The resident population amounts to 15,462, exclusive of military convicts, and aliens on temporary permits, whose number in December, 1863, was 1,031. The births among the resident population had been in the year 608, the deaths 413. There were 11 schools, in which 1,158 boys and 972 girls received instruction, besides 7 regimental schools, with 268 boys and 242 girls The revenue was 30,084*l.*, the expenditure 29,748*l.* There had been a decrease on the importation of wines and spirits, and a considerable increase in that of beer.

VII.—MISCELLANEOUS.

1.—*Education and Connected Matters.*

77. EDUCATION, SCIENCE AND ART.—Sums granted for such objects in 1865-6:—

	£.
Public Education, Great Britain	693,078
Science and Art Department	161,841
Public Education, Ireland	325,583
Commissioners of Education, Ireland, Office Expenses	730
University of London	8,773
Universities, &c., in Scotland	19,485
Queen's University in Ireland	2,372
Queen's Colleges, Ireland	5,150
Royal Irish Academy	700
National Gallery, Ireland	3,400
Belfast Theological Professors, &c.	2,500
British Museum	100,164
National Gallery	23,336
British Historical Portrait Gallery	1,650
Scientific Works and Experiments	7,059
Universal Exhibition at Paris	5,000
Royal Geographical Society	500
Royal Society	1,000
Royal Academy of Music	500
	£1,362,821

An increase of 51,201*l.* over the preceding year.

78. NATIONAL EDUCATION, IRELAND.—At the end of 1864 there were 6,263 schools in operation; the number of distinct individual children appearing on the rolls was 870,401, the average number on the rolls during the year was 575,486, and the average number in daily attendance 315,108; their education costing 1*l.* 2*s.* 6*d.* each, of which the patrons of the schools paid only 2*s.* 6*d.* each; of this last number 100,941 were in Ulster, 93,194 in Munster, 74,780 in Leinster, and 45,593 in Connaught. The religious denominations of 657,075 pupils on the rolls for the last quarter of 1864 were ascertained, and this number gives 81·60 per cent. of Roman Catholics, and 18·40 of Protestants. The salaries to teachers and monitors in the ordinary national schools amounted to 212,689*l.*, the expenditure on model and literary schools was 28,000*l.*, and more than 4,000*l.* was received in them for fees. The expenditure on normal and training schools was about 9,000*l.* There were 19 farm schools under the management of the Board the expenditure on which was 8,793*l.*, and the receipts from the sale of farm produce 5,449*l.*; and there were 72 such schools under local management, but in connection with the Board. The expenditure on books was 19,279*l.*, the receipts for books and apparatus, sold at a reduced price, was 13,298*l.* The official establishment in Dublin cost 15,471*l.*, and the cost of inspections was 23,233*l.*

79. BRITISH MUSEUM.—The total expenditure on the British Museum in the year ending March 11, 1865, was 97,533*l.*, of which 20,093*l.* was expended on purchases and acquisitions, and of this 10,002*l.* were for printed books; 1,737*l.* for MSS.; 999*l.* for zoological specimens; 1,503*l.* for coins and medals; 1,940*l.* for Greek, Roman, Medieval, Oriental and British Antiquities; 1,499*l.* for prints and drawings; 800*l.* for minerals and meteorites; and a special sum of 3,984*l.* for statues from the Farnese Palace at Rome. Bookbinding, preparing specimens, &c., cost 10,451*l.*; printing catalogues, taking casts, &c., 1,233*l.* The salaries amounted to 46,399*l.*; the house expenses, rates, and taxes, fuel, stationery, &c., to 2,967*l.*; the general repairs, furniture, fittings, &c., 12,048*l.* For law expenses the sum is only 32*l.* The total income was 132,775*l.*, including a balance in hand, and 273*l.* received from the sale of the Museum publications, and a balance remained in hand of 35,242*l.* In the year 1864 there were 432,339 visitors to the general collection; 105,899 to the reading-room for purposes of study, the readers averaging 360, and each reader consulting on an average 11 books each day; 1,140 to the sculpture galleries, 2,361 to the print-room, and 1,822 to the coin and medal-room; a total of 543,561, or 11,134 less than in 1863.

2.—*Social Condition.*

80. SAVINGS BANKS.—The annual returns relating to savings banks show that the deposits fell off in the year 1864 by no less than 1,629,985*l.*, declining to 39,277,197*l.* Excluding charitable institutions and friendly societies, the number of individual depositors

in savings banks was 61,766 fewer in November, 1864, than in November, 1863, having fallen to 1,464,989; and the deposits were less by 1,479,704*l.*, having declined to 36,594,278*l.* The returns are somewhat deficient, several banks having made no return, but this will not account wholly for the deficiency, which may be chiefly attributed to the great increase in the post-office savings banks. The return shows that at the commencement of the present year there were payable 6,372 life annuities granted by savings banks, amounting together to 130,645*l.* a year, and 58 annuities for terms of years, amounting to 1,052*l.* Since the institution of savings banks the National Debt Commissioners have paid to the trustees of savings banks and friendly societies, or added to the principal sums due to them interest to the amount of 39,908,683*l.*

81. Post Office Savings Banks.—The cash received from depositors between January 1 and December 31, 1864, was 3,350,084*l.*, the repayments, including warrants issued but not cashed, was 1,834,849*l.*; the amount standing to the credit of depositors on December 31, including interest, was 4,993,123*l.*, the interest for the year had been 101,059*l.*

82. Loan Societies.—The number of these societies at the end of 1864 was 826, an increase of 68 over that of 1863. Cornwall, Derbyshire, Dorsetshire, Huntingdonshire, Monmouthshire, Oxfordshire, Rutlandshire, Shropshire, Suffolk, and the northern counties of Cumberland, Northumberland, and Westmoreland, are all without any. Bedfordshire, Buckinghamshire, Herefordshire, Somersetshire, Wiltshire, and Worcestershire have only one each; Cambridgeshire, Gloucestershire, Hampshire, and Hertfordshire have 2 each; and all Wales has but 5. In Middlesex they number 430, an increase of 67; in Surrey they number 149, an increase of 19. The total amount of money actually advanced by depositors in the year was 245,286*l.*; the sums in borrowers' hands at the end of the year were 542,650*l.*; the amount circulated in the year was 898,685*l.* The gross profits for the year, including 10,526*l.* received for forms of application and inquiry, were 62,349*l.*; the expenses of management were 22,101*l.* The sum paid as interest to depositors or shareholders was 32,739*l.*, and the net profit, after defraying the expenses of management and interest to depositors, was 986*l.* In the course of the year 190,178 applications were made for loans, 173,725 were granted. There were 16,593 summonses issued in the year for sums amounting to 27,964*l.*, and 1,704 distress warrants were issued, 24,471*l.* being recovered on the processes. The costs incurred by the societies in 1864 amounted to 3,101*l.* of which 2,778*l.* were recovered from borrowers or their sureties.

83. New Joint-Stock Companies.—In the year 1864 there were 282 new companies brought out, with capitals offered for subscription of 106,523,000*l.*, and an authorized capital of 155,887,500*l.*; all being limited but one. There were also new issues by old companies to the amount of 35,315,000*l.*, of which 11,683,833*l.* were called up by payment and premiums.

3. *Intercommunication.*

84. Post Office.—The Tenth Report gives the following results for 1863. For the whole of the United Kingdom it is estimated that there are 5,242,723 inhabited houses, with 29,335,318 inhabitants; for their accommodation there are 15,202 receptacles for post letters; and the total number of letters delivered in the year was 642,324,618, equal to 22 for each inhabitant. The number of Money Order offices was 3,005, the amount of orders issued was 16,493,793*l.*, and of orders paid 16,638,271*l.* The number of Post Office Banks on March 31, 1864, was 3,024, with 372,955 depositors, and 4,097,492*l.* of deposits. In England the London postal district is estimated to contain 445,787 houses, with 3,316,932 inhabitants; it has 1,035 receptacles for letters, and in the year there were 161,000,000 delivered, or 48 for each individual; of the total number 76,000,000 are estimated to have been posted for delivery within the local district. Manchester follows London in rank, with 170,165 inhabited houses and 888,262 inhabitants; it has 224 receptacles for letters, with 3 deliveries daily, and 18,743,000 letters delivered in the year, or 21 for each individual. In Liverpool there were 78,930 inhabited houses with 521,578 inhabitants, 93 receptacles for letters, 4 deliveries daily, and 16,566,500 letters delivered, or 31 for each inhabitant. Leeds had 84,884 inhabited houses with 395,659 inhabitants, 131 receptacles, 3 deliveries daily, and 7,300,000 letters delivered, or 18 for each inhabitant. Sheffield, 52,031 inhabited houses, with 251,527 inhabitants, 77 receptacles, 2 deliveries daily, and 4,257,000 letters delivered. Nottingham, 43,857 inhabited houses, 208,997 inhabitants, 2 deliveries daily, and 3,395,340 letters delivered, or 16 for each inhabitant, the same as Sheffield. No other town reaches 200,000 inhabitants. Malvern and Leamington are remarkable for the extent of their correspondence; Malvern, with 8,581 inhabitants received in the year 884,715 letters, or 103 for each inhabitant; Leamington, with a population of 21,569, had 1,245,712 letters, or 57 for each inhabitant. Some explanation is afforded by the fact that the increase is occasioned by the season visitors, who are not enumerated in the population; this is borne out by other towns, the resort of holiday visitors, thus Margate has 44 for each resident, Ramsgate 42, Scarborough 42, Southport 52, and Windsor 40. In the whole of England and Wales there were 529,325,485 letters delivered, or 26 for each individual. In the whole of Scotland there were estimated to be 397,909 inhabited houses, with a population of 3,095,845, who received in the year 61,401,678 letters, or 20 for each. In Ireland, with 982,633 houses and a population of 5,606,975, there were only 51,597,455 letters delivered, only 9 for each individual. In 1863 the staff-officers, postmasters, clerks, sorters, stampers, messengers, guards, and

letter carriers numbered 25,492, and there were 1,017 pensioners; the total cost of collection, delivery, and management, including money order business, was 1,381,255*l.*, the total cost of conveyance by mails was 1,575,231*l.*, of which 149,333*l.* was for conveyance by carts, coaches, and omnibuses, 538,512*l.* by railways, 867,197*l.* for conveyance by ships, or over the Isthmuses of Suez and Panama for foreign correspondence, and 20,189*l.* for supply and repairs of mail-bags, boxes, &c. The total postal revenue for the year was 3,999,455*l.*, the total cost 2,956,486*l.*, and the net revenue to the Exchequer 1,042,969*l.*

4. *Agriculture.*

85. Agricultural Statistics of Ireland.—The annual returns for 1864 show that there were 5,676,521 acres under cultivation; that there was an increase of 12,421 acres under tillage over that of 1863, but a decrease of 121,782 acres of land under cereals, oats having decreased in every county to the total extent of 138,997 acres, while wheat had increased by 16,172 acres, and barley, bere, and rye, by 1,043 acres. Potatoes had increased by 16,310 acres, and flax by 87,594 acres, the chief increase being in Ulster, and hay by 48,931 acres; but turnips, mangel wurzel, and cabbage had decreased by 18,632 acres. The estimated produce was generally under the average of the preceding years, except in flax, which gave 34·2 stone (14 lbs.) to the acre against 31·9 in 1863. The estimated quantities were: of wheat, 875,782 quarters; oats, 7,826,332, a deficient crop, independent of the smaller breadth sowed, and a decrease from 1863 of 1,102,339 quarters; barley, 761,909 quarters; bere, 15,160, and rye, 12,680 quarters. Of the green crops there were 4,312,388 tons, an increase of 866,439 tons over the crop of 1863, the return being more per acre; turnips gave 3,447,659 tons against 4,183,672 in 1863, the land sown being less, and the produce per acre averaging a ton and a half less; mangel-wurzel 147,284 acres, a decrease of 37,938 tons; cabbage, 297,375, a decrease of 45,037 tons, both being indifferent crops; flax 64,506 tons against 42,646 in 1863; and hay, 2,607,153 tons, a decrease of 154,880 tons from that of 1863, in consequence of a smaller acreable yield. The return of stock shows a continued decrease in horses and pigs, and an increase in cattle and sheep. The total number of horses in Ireland was 561,361 against 579,978 in 1863, and this value was estimated at 4,490,888 against 4,639,824. The total number of cattle was 3,257,309, showing an increase over 1863 of 113,078, but there was a decrease of 50,707 milch cows, and of 4,906 two-year-olds and upwards, the increase all taking place in calves and cattle under two years. Of sheep the total number was 3,363,068, an increase dispersed through every class of 54,864 over the previous year. Of pigs the total number was 1,056,249, a decrease of 11,209. The value of the cattle was estimated at 21,172,508*l.*, of the sheep at 3,699,375*l.*, of the pigs at 1,320,311*l.*, showing a gross increase on the value of 632,411*l.* The return up to June, 1865, states that the total acreage under all crops was 5,648,103 acres; showing a decrease in the total extent under crops of 28,218 acres from 1864; but though there was this decrease on the total area, there was an increase in the extent under grass to the amount of 127,470 acres, the area under "bog and waste unoccupied" having diminished by 101,543 acres. Woods and plantations also show an increase this year, and fallow a decrease. The returns of live stock for 1865, compared with 1864, show an increase in the number of cattle of 231,120, of sheep 321,801, and of pigs 241,413, and a decrease in horses of 14,391. The total estimated value of horses, cattle, sheep, and pigs, this year was 32,772,609*l.*, being an increase of 2,043,699*l.* compared with 1864. It is very satisfactory to observe the continued care bestowed on the rearing of young stock throughout the country. The returns exhibit an increase in the number of cattle, sheep, and pigs under one year old in each of the provinces, and almost in every county, the total increase of cattle under that age being 56,147, of sheep 175,441, and of pigs 220,285.

5.—*Other Subjects.*

86. Accidents on Railways.—In the year 1864 there were 46 passengers killed, and 780 injured, by accidents to passenger trains; and there were 22 servants of the companies and others killed, and 51 injured; making a total of 68 killed and 831 injured.

87. Public Works and Buildings.—Sums granted for such objects for 1865-6:—

	£.
Royal Palaces	48,836
Public Buildings	100,590
Furniture of Public Offices	12,000
Royal Parks and Pleasure Gardens	99,090
New Houses of Parliament	49,456
British Embassy Houses, Paris and Madrid	5,708
British Consulate and Embassy Houses, Constantinople	3,455
New Foreign Office	60,000
Industrial Museum, Edinburgh	9,139
Probate Court Registries	17,893
Public Record Repository	28,750
New Westminster Bridge	12,000
Nelson Column	9,500
Patent Office	4,500
Metropolitan Fire Brigade	10,000
Public Offices, Site	20,000
Legation House, Tangiers	1,559
Harbours of Refuge	76,000
Holyhead and Port Patrick Harbours, &c.	49,930
Public Buildings, Ireland	103,677
New Record Buildings, Dublin	6,000
National Gallery, Dublin	813
Lighthouses abroad	19,474
Isle of Man Lunatic Asylum	4,000
Sheriff Court Houses, Scotland	20,000
Rates for Government Property	27,000
	£799,370

A decrease of 54,178*l.* from the previous year.

X.—JUDICIAL STATISTICS OF ENGLAND AND WALES FOR 1864.

THE Annual Report for the year gives the following results:—

Under the head of *Police and Constabulary* there was an increase of 227 in the number of the force in the year ending Sept. 29, 1864, over that of 1863, the numbers being 22,849, composed thus:—

Borough constables	6,458
County constables	8,335
Metropolitan police	6,682
Police in dockyards, &c. . . .	725
City of London police . . .	649

The increase consisted of 145 county constables, 92 metropolitan, and 21 city of London policemen, while there was a decrease of 13 borough constables, and 18 police employed in dockyards, &c. The total expense was 1,700,213*l.*, of which 1,268,714*l.* was for salaries and pay; 36,067*l.* for allowances and contingencies; 125,704*l.* for clothing and accoutrements; 78,655*l.* for superannuations and gratuities, 33,931*l.* for horses, harness, forage, &c.; 127,141*l.* for station-house charges, printing, stationery, &c., other miscellaneous charges, 30,001*l.* Of the total cost, 435,219*l.* was for the police of boroughs, towards which the public revenue contributed 86,164*l.*; for counties the charge was 638,705*l.*, and of this 126,272*l.* was paid by the Treasury; the metropolitan police cost 527,248*l.*, of which 143,129*l.* was paid by the Treasury; the dockyard police cost 48,239*l.*, all paid by the Treasury; and the City of London police cost 50,801*l.*, all defrayed by the City. The average cost per man of the whole force was 74*l.* 9*s.* 11*d.*, the average of the salaries or pay being 55*l.* 10*s.* 6*d.* per man.

Criminal Classes.—In the year ending at Michaelmas, 1864, there was a decrease of 4,747 known thieves at large from 1863, but this decrease partly arises from a more judicious classification, by which persons earning an honest livelihood during the year are not included, though they may have been previously convicted. There was a decrease of 433 receivers of stolen goods, of 706 prostitutes (including 97 under 16), of 2,252 suspected persons, and of 1,250 vagrants and tramps. The numbers as given stand thus:—

		Males.	Females.	Total.
Known thieves and depredators	under 16 .	2,765	955	3,720
Ditto	over 16 .	14,885	4,693	19,578
Receivers of stolen goods	under 16 .	36	16	52
Ditto	over 16 .	2,524	612	3,136
Prostitutes . . .	under 16 .	..	1,292	1,292
Ditto	over 16 .	..	26,802	26,802
Suspected persons .	under 16 .	2,685	91	3,676
Ditto	over 16 .	21,879	4,682	26,561
Vagrants and tramps .	under 16 .	3,687	3,019	6,706
Ditto	over 16 .	17,361	7,865	25,226
Total .	under 16 .	9,173	6,273	15,446
	over 16 .	56,649	44,654	101,303
	Total .	65,822	50,927	116,749

There were also in local prisons (not including debtors and military prisoners) 17,346 persons; in convict prisons, 7,975; and in reformatories, 3,186; a total of 145,256: a remarkable decrease of 10,129 from the returns of 1863. The metropolis still holds its rank and even improves, there being but 1 criminal for every 260 persons; there is however improvement in all; the seats of small and mixed textile fabrics, Norwich, Nottingham, Derby, Macclesfield, Coventry, Newcastle-under-Lyne, and Congleton are next to the metropolis, showing but 1 in 167; the cotton manufacturing towns, 1 in 136; the woollen and worsted manufacturing towns, 1 in 120; the hardware manufacturing towns, 1 in 117; the agricultural towns, 1 in 110; and the pleasure towns, 1 in 79; a deterioration, as last year there was but 1 in 81. These pleasure towns show but ill also in the returns of prostitutes, increasing from 1 in 247 to 1 in 231, and the metropolis also shows an increase from 1 in 576 to 1 in 566; the commercial ports have 1 in 220, and the agricultural towns 1 in 284, a decrease, though still high; while all the manufacturing towns show a large decrease; the towns of mixed textile fabrics have 1 in 492; the cotton towns, 1 in 536; the woollen towns, 1 in 634; and the hardware towns only 1 in 718.

The number of houses of bad character show a general decrease, the total decrease amounting to 976. The details are as follow:—

Houses of receivers of stolen goods .		2,393
Public-houses, resorts of thieves and prostitutes		2,216
Beer-shops	ditto . .	2,317
Coffee-shops	ditto . .	445
Other suspected houses	ditto . .	1,392
Brothels		7,092
Tramps' lodging-houses . . .		5,879
		21,734

During the year, the police had information of 51,058 indictable crimes, and 28,734

persons had been apprehended, a decrease of 1,153 crimes and 1,676 apprehensions. The quarterly returns of crimes committed and persons apprehended were—

	Crimes.	Apprehensions
Oct. to Dec.	14,145	7,812
Jan. to March	13,482	7,321
April to June	11,669	6,737
July to Sept.	11,762	6,864
	51,058	28,734

Of the 28,734 persons apprehended for indictable offences, 21,704 were males and 7,030 were females; of the total 5,942 males and 2,758 females were discharged; 99 males and 43 females were discharged on bail to appear if required; 1,318 males and 272 females were bailed to appear for trial; 38 males and 8 females were committed for want of sureties; and 14,307 males and 3,949 females were committed for trial. Of the crimes committed, 3,091 were offences against the person, including 134 murders and 46 attempts at murder; 5,022 were offences against property with violence, 39,481 offences against property without violence, 774 malicious offences against property, 1,364 forgery and offences against the currency, and 1,326 offences not included in the above classes, such as perjury, attempts to commit suicide (a class numbering 720, more than half of the whole), offences against the game laws, &c. Altogether, there were 19,506 persons tried, of whom 15,398 were males and 4,108 females; of these, 4,753 were acquitted or discharged, 27 were not tried or acquitted on the ground of insanity. The commitments for murder were 70, of which 45 were males and 25 females; of the whole 9 were detained as insane, 29 were acquitted, and 32 were found guilty and sentenced to death, and 19 were executed, 12 had their sentences commuted to penal servitude for life, and 1, a female, to 20 years. The total number of convictions was 14,726, of which 1,888 were for offences against the person (including those for murder), 1,624 for offences against property with violence, 10,031 for offences against property without violence, 244 for malicious offences against property, 492 for forgery and offences against the currency, and 447 for other offences not included in the foregoing classes. Of the punishments, 12 were sentenced to penal servitude for life (exclusive of those whose sentences for murder were commuted), 15 for more than 15 years, 68 for periods between 15 years and 10 years, 772 between 10 and 6 years, 770 between 6 and 4 years, 365 for 4 years, and 443 for 3 years. Of imprisonments for shorter periods, varying from 3 years to 1 month, or less, sometimes accompanied with whipping, fine, &c., there were 8,109, 301 were fined and discharged on sentence, and 256 were detained and sent to reformatory or industrial schools.

In the summary proceedings before magistrates there was an increase of 19,050, the number for the year ending at Michaelmas, 1864, being 440,913, of whom 352,809 were males and 88,104 were females. Of these, 249,484 males and 51,247 females were convicted, a total of 300,731; that is, 7·07 per cent. of the males, and 58·1 per cent. of the females. Of those convicted, 84 were imprisoned for periods exceeding six months, 2,870 for periods of not more than six nor less than three months, 7,864 for periods between three and two months, 11,105 for periods between two months and one month, 23,183 for one month and not less than 14 days, and 26,789 for 14 days or less; 978 were sent to reformatory schools, and 336 to industrial schools. There were 187,903 fined, 443 whipped, 11,655 ordered to find sureties or to enter into recognizances, 1,591 given up to the army or navy, and 25,930 condemned to other punishments. Of the charges, larcenies or attempts to steal numbered 43,817, a decrease of 1,968, or 4·3 per cent. from 1863; malicious offences against property, and trespass, 19,704, an increase of 975, or 5·2 per cent.; assaults, 94,374, an increase of 7651, or 8·8 per cent.; offences against the game laws, 10,117, an increase of 479, or nearly 5 per cent., but night poaching was only 674 against 686 in 1863; for being drunk and disorderly, 100,067; vagrancy, 29,648; offences against local acts and borough bye-laws, 26,878; against highway and railway laws, 22,533; under police acts, 17,869; licensed victuallers' and beer acts, 12,209; against laws relating to servants, apprentices, and masters, 10,246; weights and measures act, 4,908; mutiny acts, 3,119; poor-law acts, 7,261; nuisances and offences against health, 4,533. The classes from which the offenders are furnished, in both the criminal and summary proceedings, are shown in the following table, which gives a total of 469,502:—

Characters.	Proceeded against by Indictment.		Proceeded against Summarily.	
	M.	F.	M.	F.
Known thieves	4,715	1,277	11,698	2,927
Prostitutes	..	1,448	..	17,434
Vagrants, tramps, and others without visible means of subsistence	792	127	14,944	4,551
Suspicious characters	5,270	1,143	33,402	5,796
Habitual drunkards (not under the above heads)	454	127	24,194	6,362
Previous good character	4,903	1,118	142,558	18,456
Character unknown	5,570	1,790	125,887	35,559
Total	21,704	7,030	352,683	88,085

Coroners' Inquests.—In 1864 there were 24,787 inquests, on 17,199 males and 7,588 females; an increase of 1,439 males and 601 females, or 8·9 per cent. on the whole. Verdicts of murder were found in 110 cases of males and 136 females; and of these 246 cases 203 were of infants of 1 year or under, an increase of 37 over the number in 1863. There were 211 verdicts of manslaughter, 5 of justifiable homicide, 1,337 of suicide, 10,997 of accidental death, 198 were found to have died from injuries of which the causes were unknown, 2,648 of the verdicts were merely of found dead, in 417 cases the deaths were found to have arisen from excessive drinking, 125 from disease aggravated by neglect, 213 from want, cold, exposure, &c., and 8,390 from various other causes. Of the whole number, 2,943 were on infants under a year old, and of these 1,054 were illegitimate; 2,975 were above 1 year and under 7, and of these only 232 were illegitimate; 1,853 were between 7 and 16, 11,390 were between 16 and 60, 4,304 were 60 and above, and 322 of ages unknown. The total cost of the inquests was 72,597*l.*, an average of 2*l.* 18*s.* 7*d.* per inquest; a decrease of 3*s.* 10*d.* per inquest, but an increase on the total amount of 1,580*l.*

Prisons.—In the returns relating to prisons, those under the head of convict establishments are made up to March 31, 1865; all others to September 29, 1864. The total number of commitments to prison during the year was 139,286, a decrease of 5,933 or 3·6 per cent. Of the whole number 104,373 were males and 34,913 were females. There were 19,658 persons committed for trial and tried, 94,611 on summary convictions, 2,923 for want of sureties, 9,814 on remand and discharged, 10,209 for debt and on civil process, and 2,071 for military and naval offences. There were 45,192 recommittals, an increase of 155; of the total, 1,173 males and 2,802 females had been committed more than ten times; 1,000 males and 1,027 females between ten times and seven times; females continuing to afford the larger number of recommitments when they become so numerous, but do not outnumber the males in the less frequent recommitments, though still maintaining an undue proportion. Of the other commitments, 13,976 males and 4,627 females had been committed once previously; 5,812 males and 2,273 females twice, and 8,220 males and 4,282 females from three times to less than seven. Of the prisoners, exclusive of debtors and naval and military prisoners, 1,152 were under 12 years of age, and of these only 162 were girls; 7,305 were between 12 and 16, 25,272 between 16 and 21, 42,174 between 21 and 30, 24,904 between 30 and 40, 15,115 between 40 and 50, 6,551 between 50 and 60, 3,267 above 60, and 866 of whom the age was not ascertained. The total is 127,006, a decrease of 2,521 from the preceding year, while there is an increase of 398 in the number of those under 16 years of age. The offenders were thus distributed according to their birth-places:—England furnished 98,638, Wales 3,443, Scotland 2,559, Ireland 18,977, colonies and East Indies 576, foreign countries 1,665, and 1,156 not ascertained; an increase is shown only in Wales and Scotland, though not a large one. The returns as to the state of instruction seems to show that a certain amount has been diffused among the classes from which the greatest amount of criminality is produced; those who read and write imperfectly are by far the most numerous, while those receiving superior instruction appear in still diminishing numbers in the lists of offenders. The numbers in 1864 were—

	Males.	Females.
Neither read nor write	31,070	13,362
Read, or read and write imperfectly	54,830	19,892
Read and write well	5,866	854
Superior instruction	215	19
Instruction not ascertained	602	296
Total	95,983	34,423

The following is the classification of professions—

	Males.	Females.
No occupation	5,805	16,144
Domestic servants	963	3,342
Labourers, charwomen, needlewomen	49,714	10,173
Factory workers	4,006	2,479
Mechanics and skilled workers	23,105	742
Foremen and overlookers of labour	136	1
Shopmen, shopwomen, clerks, &c.	1,488	70
Shopkeepers and dealers	2,606	1,110
Professional employments	221	12
Sailors, marines, soldiers	3,937	—
Occupations not ascertained	602	350
Total	98,583	34,423

The number of the commitments during 1864 was 5,933 less than in 1863, and the number removed, discharged, or otherwise provided for were 3,300 less. In the number remaining in prisons at the end of the year there was a diminution of 770, and there remained 18,130, consisting of 14,074 males and 4,056 females, and of these 479 males and 23 females were for debt. Additional accommodation had been provided for 209 prisoners, the prisons now being constructed to contain on the whole 27,630 prisoners, while the greatest number of persons in confinement at one time was 22,880 (17,968 males and 4,912 females), the daily average through the year having been 18,511; but in some cases there was a deficiency with regard either to males or females, and in Chester city jail, at Sandwich, and in the Preston and Salford houses of correction, the total deficiency was great. At Sandwich, with accommodation for 18, there were once 38, and the daily average was 24; at Preston, constructed for 275, the greatest number at one time was 421, and the daily average was

369; at Salford, constructed for 535, the greatest number at one time was 662, and the daily average was 575; Scarborough remains with accommodation for 12, and has to receive occasionally 26, while the daily average is 14; Liverpool and Stafford are also among the jails with insufficient accommodation. The number of deaths in prison had been 240, exceeding those of 1863 by 22. Cases of sickness also were more numerous by 1,172 than in the previous year, numbering 63,548, of which 58,974 were of slight indispositions, 140 were of insanity, and 3,241 males and 1,193 females were infirmary cases. The greatest number of sick at one time was 1,757, which was 107 less than the like number in 1863. In the year there had been 57,645 prison punishments, a large increase, of which 120 were whippings, all of males, 122 irons or handcuffs, of which 54 were of females, 16,521 solitary or dark cells, 37,305 stoppages of diet, and 3,577 other punishments. Of the total, 7,038 were females, a proportion of 1 to every 5·5 of the females, while that of the males was 1 to every 2·7. The total cost for prisons and prisoners was 549,930*l.*; new buildings, additions, alterations, and repayment of borrowed money, interest, &c., being 116,885*l.*; ordinary establishment charges, fuel, bedding, rates and taxes, printing, &c., 100,035*l.*; officers' salaries, fees, and pensions, 192,557*l.*; prisoners' diet, clothing, &c., 140,453*l.*; a decrease on this last item of 12,395*l.*, said to have arisen on the cost of diet. The average annual cost for each prisoner was, for buildings and fittings, 6*l.* 6*s.* 3*d.*; for ordinary annual charges, fuel, furniture, printing, &c., 5*l.* 8*s.* 1*d.*; for officers, attendants, &c., 10*l.* 8*s.*; for diet, 5*l.* 8*s.* 10*d.*; and for clothing, &c., 2*l.* 2*s.* 11*d.*; a total average of 29*l.* 14*s.* 1*d.*, or, omitting the charge for buildings and fittings, 23*l.* 7*s.* 10*d.*, an increase of 5*d.* per head over 1863. But the cost per head varies greatly. At Alnwick county jail, with a daily average of one prisoner, the cost is 88*l.* 15*s.* 11*d.*; at Oakham jail, with an average of 10 prisoners, it is 80*l.* 11*s.* 2*d.*; it is clear that in these very small jails there is a maximum of cost as well as of inconvenience. The lowest rate is at Salford, with a daily average of 575 prisoners, the cost per head is 14*l.* 13*s.* 6*d.*; and in Durham, with 418 prisoners, the cost is 15*l.* 14*s.* 7*d.* The prison receipts for the year were—from prisoners' labour and other small receipts, 46,150*l.*; from local rates and funds, 394,958*l.*; and from the public revenues, 108,622*l.*

There are now 11 convict prisons. Pentonville and Millbank are for convicts undergoing the first stage of discipline in separate confinement; Chatham, Portland, and Portsmouth for convicts employed on public works; Dartmoor and Woking are the invalid establishments; juvenile convicts also being confined in the former; Broadmoor is the prison for insane convicts, but a certain number of others are here detained while employed in the completion of the prison; Brixton, Fulham, and Parkhurst are used for females who have undergone their probationary term in Millbank. At the beginning of the year, which now commences on April 1, there were in confinement 6,142 males and 1,243 females; up to March 31, 1865, there were received from county and borough prisons 2,724 males and 447 females; a total of 10,566 for the year. Of these 261 males were sent to Western Australia; 220 males to Gibraltar; 5 were removed to county jails; 3 to schools or reformatories; 47 males and 5 females to lunatic asylums; 170 males and 45 females were discharged on the termination of their sentences; 2,087 males and 338 females on tickets of leave; 3 males on commutation of sentence; and 9 males and 4 females were pardoned. There were 87 males and 24 females who died; and 6 males who committed suicide; and 1 male escaped. A total of 2,899 males and 416 females were disposed of in the year, leaving 5,967 males and 1,274 females in confinement at the close of it; a total of 7,241, while the daily average had been 7,418. The punishments during the year were 10,318, an increase of 998 over those of 1863; 57 were corporal punishments, 2,398 confinement in solitary or dark cells, 4,498 stoppages of diet, and 3,365 minor punishments. The cost of the convict establishments was 247,227*l.*; the average annual cost of each prisoner, 33*l.* 6*s.* 6*d.*; while the productive labour produced 6,109*l.*, and the sale of old stores and other receipts 8,464*l.* But besides these certain convicts were sent under contract with the Government to the jails of Wakefield, Leicester, Leeds, Bradford, Aylesbury, Northampton, Nottingham, and Taunton; in these at the beginning of the year there were 547 prisoners, 901 were received during the year, 704 were removed to public works or invalid prisons, 5 died, 2 were pardoned, and 737 remained. In these jails (that of Leeds having been discontinued) the prisoners undergo the first stage of solitary confinement, as at Pentonville and Millbank. The amount of sickness was large, there being 23 infirmary cases, 678 cases of slight indisposition, and 2 of insanity; the punishments were also numerous: 4 cases of whipping, 580 of solitary or dark cells, 69 of stoppage of diet, and 4 other punishments. The total cost was 21,967*l.*, from which has to be deducted 1,935*l.*, the product of prisoners' earnings, &c. The number of criminal lunatics and insane persons ordered to be detained was 929 at the beginning of the year commencing September 30, 183 were removed from other asylums, and 197 were committed during the year. Of these 42 died, 7 escaped, 44 were discharged on becoming insane, 7 removed for trial or punishment on becoming sane, and 201 removed to other asylums; there remained under detention 1,008. The total charge for the year was 48,910*l.*, an increase of 18,963*l.* over the expenditure of 1863. This amount is furnished from county rates, 4,570*l.*; borough rates 1,166*l.*; parish rates, 5,518*l.*; private funds, 2,476*l.*; and from the Treasury, 35,180*l.*

Reformatory Schools.—The number of these schools continues at 51. At the com-

mencement of the year ending September 29, 1864, there were 3,268 offenders in the establishments, 2,573 males and 695 females; and there were committed 797 males and 210 females, 532 of whom had suffered some previous imprisonment, 337 only once, but only 1 more than 5 times; and of these 1,007, the detention of 52 was to be of two years, 273 of three years, 191 of four years, and 491 of five years. There were also 11 received from other reformatory schools, 22 from prison after confinement for refractory conduct, 14 after absconding, and 27 returned after leave of absence, or from service. Of the whole 4,349, there were 3,432 males and 917 females. Of the 1,007, there were 416 boys and 113 girls who could neither write nor read; 340 boys and 74 girls could read and write imperfectly; 41 boys and 18 girls could read and write well; of 5 the instruction was not ascertained; and there were none who had had superior education. Their crimes included—47 cases of house and shop breaking, 15 of burglary, 1 highway robbery, 2 of horse stealing, 2 of cattle stealing, 10 of arson, 30 of vagrancy, 837 of larcenies of various kinds, and the remainder of a mixed character. Their ages were—58 under 10 years, 77 under 11, 128 under 12, 190 under 13, 239 under 14, 219 under 15, and 96 under 16. During the year 522 were discharged by order of the Secretary of State, or on license, 482 on completion of term of detention, 44 absconded and were not retaken, 32 were committed to prison for refractory conduct, 52 were removed to other reformatory schools, and 31 died—total, 1,163; and their remained in detention 3,186, of whom 2,518 were boys and 668 girls. The total amount payable by the Treasury was 47,307*l.*, less than the previous year by 4,387*l.*, and 2,256*l.* were recovered from parents in diminution of the expenses.

Industrial Schools.—At the Middlesex Industrial School at Feltham there were 554 boys under detention on September 30, 1863; During the year 187 were committed, and 1 re-admitted after absconding; a total of 742. Of this number, 1 was discharged by order of the Secretary of State; 182 on completion of the term of detention; 3 absconded and were not retaken; 1 was removed to a lunatic asylum; and of 1 the sentence was reversed; the total, 188; leaving the number retained exactly the same as at the commencement of the year. Of the 187, there were 164 committed on summary convictions, and 23 after being convicted on indictment. Of the whole, 125 had not been previously committed to any prison, but 42 had been imprisoned once, 14 twice, and 6 three times. The offences were nearly all larcenies, only 3 were sent for a term less than two years; and 184 were sentenced to longer terms, three years being the maximum of the time they are kept. The ages of the offenders at the time of commitment were 10 under 10 years of age; 16 between 10 and 11; 27 between 11 and 12; 42 between 12 and 13; and 91 between 13 and 14; above 14, boys are not admitted. Of 15 of the offenders both parents were dead; of 76, one parent was dead; 5 had been deserted by one of their parents; but 91 had been under the parental control of both parents, and 78 under that of one; yet 104 could neither read nor write; 81 could only read and write imperfectly; and 2, both over 13 years of age, could read and write well. The cost per head to the county had been 22*l.* 19*s.* 10½*d.*, and 382*l.* 17*s.* 6*d.* had been recovered from the parents, less than 1*s.* per head.

The number of industrial schools certified under Acts of Parliament are now 29, of which 9 are in the metropolis. At the end of the year, in September 1863, there were 484 boys and 193 girls under detention, during the year 279 boys and 71 girls were committed, a total of 763 boys and 264 girls. Of these 13 boys and 7 girls were discharged on suitable employments being found, 23 were removed to other institutions, 62 were discharged on completing the term of detention, 6 on attaining 15 years of age, 23 by order of the secretary of state, 6 died, 32 absconded and were not retaken, and 637 boys and 218 girls, a total of 855, remained under detention; an increase of 178 over the preceding year. Of the 1,027 detained during the year, 56 were under 8 years of age, 100 were between 8 and 9, 150 between 9 and 10, 218 between 10 and 11, 203 between 11 and 12, 176 between 12 and 13, 117 between 13 and 14, and 7 of ages unknown. The cost of maintenance for the year had been 11,833*l.*, of which 441*l.* only were contributed by the parents.

Civil Law.

In the *Courts of Common Law* in 1864, there were issued 113,138 writs of summons 520 writs of capias, 30,116 appearances were entered, 36,564 judgments and 25,574 executions issued. There were 566 motions for new trials heard, and 705 other special motions; and there were 3,376 hand motions and on side-bar rules, and 664 causes referred to Masters. There were 2,501 causes entered for trial at Westminster, of which 1,219 were tried, 965 defended, 254 undefended, the rest withdrawn, struck out, &c. Of those defended, 303 were tried in the Queen's Bench, 346 in the Common Pleas, and 316 in the Exchequer. At Nisi Prius 1,322 causes were entered, of which 355 were heard in the Queen's Bench, 220 in the Common Pleas, and 377 in the Exchequer, the remainder withdrawn, struck out, &c. There were also 40 causes entered for trial on circuit in the Common Pleas of Lancaster, 2 in the Common Pleas of Durham, and 6 issues from the Court of Probate, all of which were tried except 14 of the Lancaster causes, which were withdrawn. The total amount of fees recovered in the three courts was 69,807*l.* The total amount recovered in the suits was 368,182*l.*; there were 10 suits for more than 5,000*l.*, and 644 for sums below 50*l.*, the fees being thus nearly 20 per cent. of the money recovered; but of course many of the suits were not for a money value. In the three courts there were also 566 motions for new

trials addressed to the courts sitting in banco, 128 were refused, in 330 they were granted, with stipulations as to costs in 110 of them; the rule was discharged as to 106, and in 2 the court was divided.

County Courts.—The number of plaints entered in the year was 738,481, including 119 sent from the superior courts, and the causes determined were 838 with a jury, and 401,334 without a jury. The judgments were — for plaintiff, 236,758; for plaintiff by consent, 147,855; for plaintiff by default, 464; non-suited, 8,440; for defendant, 8,655. The total amount for which plaints were entered was 1,700,384*l.*, the amount awarded by judgments was 980,755*l.*, and costs recovered to the amount of 38,383*l.*, and the fees on all proceedings amounted to 244,341*l.*, or 25 per cent. on the amount recovered; the costs and fees together were 14*s.* 1*d.* for each cause determined. There were issued 124,804 executions against goods, and 3,610 sales made; there were 23,096 warrants of commitment issued, and 6,529 debtors had been imprisoned. The number of plaints in the year showed a decrease of 60,773 from those of the preceding year, which also showed a decrease of 48,000 from 1862. There were 590 protection orders granted to wives deserted by their husbands, 2 of which were discharged; and there were 2 cases heard under the Charitable Trusts Act, and 2 orders were made; probate was granted in 2 cases on decrees from these courts, and there were 3,376 adjudications in bankruptcy. In the Sheriffs' Court of London there were 10,857 plaints for sums not exceeding 20*l.*, and 132 for sums above 20*l.*: there were 46 judgments obtained with a jury, and 5,544 from the judge; 4,170 were for the plaintiff on hearing, 960 for the plaintiff by consent, 293 non-suits, and only 167 for the defendant. The total amount claimed was 38,292*l.*, the judgments were for 18,326*l.*, with costs 1,686*l.* There were 1,289 executions against goods, but only 17 sales, and 260 warrants of commitment were issued, and 120 debtors were imprisoned. The total amount of fees was 5,003*l.*

Court of Bankruptcy.—The returns include the year between Oct. 11, 1863, and the same date in 1864. In the year there had been 7,224 adjudications; of these 2,311 were in the London District Court, 1,537 in the County District Courts, and 3,376 in the County Courts. Of the total number, 4,252 were for debts under 300*l.*; and of these 3,209 were adjudicated upon by the County Courts. The total gross produce realised from bankrupts' effects was 677,536*l.* In 5,324 cases there was no dividend; in 1,586 there were dividends, but in 848 they were less than 2*s.* 6*d.* in the pound. Of trust-deeds there were 3,604 registered; and in the Masters' offices 6,148 bills were taxed, the aggregate amount of which was 87,064*l.*, and 8,118*l.* struck off. There were 5,332 orders of discharge granted, 316 suspended, and 80 refused. The total revenue of the Court of Bankruptcy for the year was 176,815*l.*; the expenditure, 140,894*l.*; and an investment of 25,000*l.* in consols was made to the Chief Registrar's account.

High Court of Chancery.—In the Appellate Courts of the Lord Chancellor, the Lords Justices, the Master of the Rolls and the three Vice-Chancellors, there were 472 pleas, demurrers, motions, causes, appeals, &c., remaining for hearing at the beginning of the year ending Nov. 1, 1864; 2,362 were set down during the year, 2,066 were heard, 237 were otherwise disposed of, and 531 were remanets at the end of the year. In the Chambers of the Master of the Rolls and the three Vice-Chancellors, there were 665 summonses to originate proceedings, and 18,626 other summonses; 13,317 orders were made, and 1,012 advertisements issued; 4,487 debts were adjudicated upon, the amount proved 1,056,103*l.*; there were 1,075 accounts passed, on which 5,421,873*l.* were received, and 4,998,892*l.* were disbursed or allowed. The number of receivers' accounts was 515, the recepts, 1,169 727*l.*; the disbursements, 956,602*l.* The sale of 494 estates under orders of the Court realized 1,947,223*l.* With regard to companies, 2,800 persons were declared included as contributors, and 114 excluded. In orders for winding-up companies, calls were made to the amount of 614,153*l.*; the amount realized on call or by way of compromise was 115,744*l.*; assets realized, 367,015*l.*; the dividends ordered to be paid to creditors were 440,820*l.*; the amount returned to contributors, 63,996*l.*; the fees levied in stamps produced 9,752*l.* In the Courts of Chancery there were 2,976 petitions presented for hearing, of which 21 were before the Lord Chancellor, 122 before the Lords Justices (on appeals), 475 before Vice-Chancellor Kindersley, 790 before Vice-Chancellor Stuart, 741 before Vice-Chancellor Wood; and 827 before the Master of the Rolls; there were 898 petitions entered in causes; of the others, 930 related to railways and public works, 690 to trusteeships, and the rest to miscellaneous matters and the fees were 3,931*l.*

In the Examiners' Office 419 witnesses were examined, and the fees received were 234*l.*

In the Taxing Master's Office there were 3,510 orders and references for taxation, 3,011 certificates and allocations made, and 7,210 bills taxed; the amount of bills taxed was 756,139*l.*, the fees levied 22,903*l.*

The Masters in Lunacy made 87 inquiries, and 246 reports to the Lord Chancellor as to the property, kindred, and maintenance of lunatics and their families. The summonses for proceedings before the Masters numbered 4,209; the amount of the receipts in the accounts passed by them was 470,442*l.*; that of the disbursements and allowances, 385,612*l.*

The Accountant-General's return states that 20,996,892*l.* had been paid into Court during the year ending October 7, 1864;

that 19,542,385*l.* had been paid out; that the total number of accounts was 26,215; that the amount of cash securities carried over was 2,445,571*l.*; and that the amount of fees was 682*l.*

The Suitors' Fund for the year produced an income of 139,014*l.*, arising from dividends on 4,112,332*l.* stock, 16,970*l.* balance in hand, and 520*l.* rent of offices let to Commissioners of Patents; of this income, 63,768*l.* was carried over to the Suitors' Fee Fund, 54,241*l.* was disbursed in various payments, and 21,005*l.* was the balance in hand. The receipts of the Suitors' Fee Fund were 98,435*l.* from the fees levied on suitors, and the total receipts, including the sum brought over from the Suitors' Fund, was 175,890*l.*; the payments and deductions were 161,990*l.*, leaving a balance of 13,900*l.* The payments from the two funds, amounting to 216,231*l.*, were distributed thus:—compensation in respect of abolished offices, 51,211*l.*; salaries of officers, 124,773*l.*; pensions to retired officers, 12,329*l.*; rents, &c., of offices, 3,005*l.*; expenses of copying in the offices, 11,527*l.*; miscellaneous payments, 13,386*l.*

The *Court of Probate* in the year 1864 granted 9,445 probates, 4,807 administrations, and 1,006 caveats; there were 483 causes, and there had been 9 trials by special jury, 7 by common jury, and 33 by the judge only; there were 102 causes pending at the beginning of the year, and 103 at the close. The amount of fees in court and contentious business was 1,891*l.*, the taxed costs were 7,602*l.*, and the amount of stamps issued for probate and administration was 808,169*l.*, an increase of 57,296*l.* over 1863. By the 40 district registrars, there were granted 14,882 probates in common forms, 6,206 administrations, 17 probates, and 8 administrations under direction of the judge, and 2 on decrees of County Courts; the caveats against grants were 311; the total amount of fees received was 63,290*l.*, and that of the duty stamps was 567,939*l.*

Court for Divorce and Matrimonial Causes.—In 1864 there had been 332 petitions filed, of which 15 were for nullity of marriage, 231 for dissolutions of marriage, 66 for judicial separation, 17 for restitution of conjugal rights, 2 for declaratory act, and 1 in formâ pauperis. There were 8 applications for protection of property, and 85 for alimony. There were 191 trials, of which 143 were tried before the judge ordinary, and 48 before the judge with a jury, on oral evidence, and 148 judgments were delivered, but no clue is given as to how many marriages were dissolved, or what the judgments were. There were applications for a new trial, but no appeals. The fees received amounted to 2,988*l.*

Admiralty Court.—At the beginning of the year, 144 causes were pending, and 494 were instituted during the year. The greatest number of the new cases were for salvage (77), and for damage by collision (219). The total amount for which all the causes were instituted was 1,355,543*l.* There were 145 judgments; 99 for plaintiffs, 30 for defendants, and 16 decrees in causes by default. The costs amounted to 20,450*l.*

Judicial Committee, and Appeals to the House of Lords.—There were 75 appeals to the Privy Council in 1864, and 90 stood over from 1863; of these 40 were heard and determined, and 8 dismissed for non-prosecution. Of the cases heard, 31 of the judgments were affirmed, 1 varied, and 8 reversed. At the end of the year 114 appeals remained for hearing, all lodged since Jan. 1, 1860. The Council office fees were 732*l.*; in 10 of the 40 causes no costs were given; and the amount of costs in 28 appeals, in which the costs of only one side were taxed, was 6,484*l.*, or nearly 232*l.* for one party to a suit. In the House of Lords there were 64 appeals and causes in error entered in the year, and 31 stood over from 1863. There were 27 judgments delivered, 10 causes withdrawn, 15 dismissed for want of prosecution, and 42 remained for hearing. The total amount of fees was 1,927*l.*

Ecclesiastical Courts.—During the year 15 suits were instituted—6 in the Arches Court, 1 in the Arches Court of York, 4 in the Diocesan Court of Bath and Wells, 1 in that of London, 1 in that of Rochester, and 2 in that of Llandaff. Of the 15 there were 9 concerning church-rates, 2 for becoming a surrogate, 1 against institution to a benefice, 2 against deprivation of a benefice, and 1 to answer articles, &c. The results were—in 1 suit an interlocutory decree; in 2 the suits were settled by agreement; in 1 the defendant was admonished; in 1 suspended; in 2 cases appointments were made; in 7 the proceedings were still pending; and 1 was appealed against. There is no indication of what the judgments refer to, but from the terms of the return it would seem that it was the church-rate suits that remained undecided. The faculties applied for were 95, of whom 78 were for erecting, altering, restoring, or re-building churches; 5 for removal of bodies; 2 for building school-houses in church-yards; 10 for other purposes; of these 91 were granted, 1 refused, and 3 were pending. The amount of the court fees was 320*l.*

The Judicial Statistics of Ireland for 1864 *were not published in time to be given in this year's 'Companion.'*

XI.—CHRONICLE OF THE SESSION OF PARLIAMENT, 1865.

[28-29 Victoriæ.]

Feb. 7. THE Seventh Session of the Sixth Parliament of the present reign was opened by Royal Commission. The Queen's Speech congratulated the Houses on the pacific condition of Europe, and lamented the continuance of the civil war in America; it next mentioned the hostile operations against one of the Japanese chiefs, which had ended in his submission; the satisfactory state of our present relations with the Government, and the marked increase of our commercial intercourse; hopes were expressed for the speedy restoration of peace in New Zealand, by the submission of the Maoris, who, it was added, would be treated mildly and equitably. The Speech next expressed satisfaction with the proposed confederacy of our North American Colonies, promising that when the Conference of Delegates had matured a scheme, a Bill should be laid before the Houses to carry it into effect. Congratulations were offered for the prosperous state of India, with regret for the calamity experienced by Calcutta and other places from the storms of last November. In the House of Lords the Earl of Charlemont moved the Address, which was seconded by Lord Houghton, and was agreed to without a division. In the House of Commons Sir H. Williamson moved the Address, which was also agreed to without a division, after expressions of dissent as to the prosperous condition of Ireland from several Irish members.

Feb. 9. (LORDS.) The Lord Chancellor laid on the table returns of proceedings in the Court of Bankruptcy, pointing to the defects in the law, for which he hoped to propose remedies after the Committee of the House of Commons had presented their report on the subject.

(COMMONS.) Lord Montague obtained leave to bring in Bills for the protection of water in rivers and streams in England; and for facilitating the more useful application of town sewage in Great Britain and Ireland.

Feb. 10. (COMMONS.) The Attorney-General obtained leave to bring in a Bill for supplying means for providing a site and erecting buildings for concentrating the Courts of Law and Justice; the site proposed was near Lincoln's Inn, between Carey Street and the Strand, and the estimate of the funds required was 1,500,000*l*. Mr. Cowper, of the Board of Works and Public Buildings, at the same time obtained leave to bring in a Bill for carrying the proposed plan into effect.

Feb. 13. (COMMONS.) Mr. Hadfield moved the second reading of the Qualification for Offices Abolition Bill, which was agreed to, and referred to a Select Committee. Sir G. Grey obtained leave to bring in a Bill to consolidate and amend the laws relating to prisons; it would include provisions for the construction of prisons, the appointment of prison officers, and the treatment of prisoners. Leave was also given to Sir H. Cairns to bring in a Bill for the Endowment and Augmentation of Small Livings in Ireland; to Sir R. Peel, for a Bill for the protection of Inventions and Designs exhibited in the Dublin National Exhibition of 1865; and to Mr. Ayrton's, for a Bill to facilitate the raising of money by debentures on the security of land.

Feb. 14. (COMMONS.) Mr. Cox obtained leave to bring in a Bill to remove some inconveniences in the working of the Public-house Closing Act, 1864; Sir F. Kelly, for further amendments of the

Law of Evidence; and Mr. Denman, for the amendment of Practice and Procedure in Courts of Criminal Jurisdiction.

Feb. 21. (Lords.) The Lord Chancellor introduced a Bill for conferring a limited jurisdiction in equity on the County Courts, to obviate the necessity of trying certain cases in the Court of Chancery, which was read a first time.

(Commons.) On the motion of Mr. Doulton, a Select Committee was appointed to inquire into the best means of preserving for the public use the forests, commons, and open spaces in and around the metropolis, with a due regard for private rights. Mr. Baines obtained leave to bring in a Bill for extending the elective franchise in boroughs from an occupation of 10*l.* yearly to one of 6*l.*; by Sir C. O'Loghlen for a Bill to amend the Law of Libel, and for more effectually securing the Liberty of the Press; to Sir R. Peel to amend the Irish Bankrupt and Insolvent Act, 1848; to Mr. M. Gibson for the protection of Inventions and Designs exhibited at certain Industrial Exhibitions in the United Kingdom; and to Mr. Newdegate for the Commutation of Church Rates.

Feb. 22. (Commons.) The Private Bill Costs Bill was read a second time, and referred to a Select Committee; as was also the Felony and Misdemeanor Evidence and Practice Bill; and Mr. E. Craufurd obtained leave to bring in a Bill to allow affirmations or declarations to be made instead of oaths, in all civil and criminal proceedings in Scotland.

Feb. 24. (Lords.) The Lord Chancellor introduced a Bill for allowing the remuneration to Solicitors and Attorneys to be fixed by mutual agreement with clients.

(Commons.) The Bankruptcy and Insolvency (Ireland) Act Amendment Bill, and Misdemeanor Evidence and Practice Bill passed through Committee.

Feb. 28. (Lords.) The Civil Bills Courts' Procedure Act (Ireland Amendment Bill was read a second time.

(Commons.) The Metropolis Sewage and Essex Reclamation Bill was, after some discussion, read a second time, and referred to a Select Committee.

March 1. (Commons.) The Law of Evidence Bill was read a second time, and the Felony and Misdemeanor Evidence and Practice Bill was read a third time, and passed. The British Kaffraria Bill, and the Common Law Courts (Fees) Bill were passed into Committee.

March 2. (Commons.) The Courts of Justice Buildings Bill was read a third time and passed; and the Courts of Chancery (Ireland) Bill was read a second time. Mr. Cardwell obtained leave to introduce a Bill to make better provision for the maritime defence of the British Colonies, on the principle of the Royal Naval Reserve in this country; and Sir W. Dunbar for a Bill to amend the laws relating to the close-time for herring-fishery in Scotland.

March 3. (Lords.) The royal assent was given by commission to the Civil Bill Courts Procedure (Ireland) Act; the Game Licences (Ireland) Bill was read a second time; as was also, after objections from Lord St. Leonards and Lord Chelmsford, the County Courts Equitable Jurisdiction Bill.

March 6. (Commons.) Lord C. Paget, in Committee of Supply, moved the Navy Estimates, and, after some discussion on the first vote for 69,750 men, the debate was adjourned. The Common Law Courts (Fees) Bill was read a third time and passed. Mr. M. Gibson obtained leave to introduce a Bill to amend the Law of Partnership.

March 7. (Lords.) The Lord Chancellor explained to the House the circumstances connected with the resignation of Mr. L. Edmunds, of the offices of Clerk of the Patents, Clerk of the Commissioners of Patents, and Reading Clerk of the House of Lords. He said that Mr. Edmunds had been accused of defalcations in his office of Clerk of the Patents; an investigation had taken place, Mr. Edmunds had paid over 7,872*l.*, which he said was all that was due; but that there were other claims, denied by Mr. Edmunds, amounting to 9,100*l.* He (the Lord Chancellor) had intended to lay these facts before the House immediately on its assembling, but delayed doing so on the request of Mr. Edmunds, who after a few days sent in his resignation. On consulting with the law officers of the Crown he found there were no grounds for a criminal prosecution, and he therefore suffered Mr. Edmunds's petition for a retiring pension to be presented to a Committee of the House, who had granted him 800*l.* a year, which grant would only be in force according to the result of the investigation for which he was about to move. He added that the office of Clerk of the Patents, which required to be filled immediately, had been given to his son, as also that of Reading Clerk to the House. The Earl of Derby thought that undue haste had been used in accepting the resignation; the facts should have been laid before the House, which would then have decided whether the misconduct in one office should involve the loss of the other. He hoped, however, that the investigation would be a searching one, and would extend to every transaction involved. In conformity with this suggestion, the motion for a Committee was agreed to. The Bankruptcy and Insolvency (Ireland) Act Amendment Bill was read a second time.

March 8. (Commons.) Lord R. Montagu moved the second reading of the Sewage Utilization Bill, which was agreed to and referred to a Select Committee. The Affirmations (Scotland) Bill was read a second time; the Private Bill Costs Bill passed the Committee; the Prisons Bill was read a second time, and referred to a Select Committee; Mr. Hunt obtained leave to bring in a Bill relating to the registration of county voters; and Mr. Longfield for a Bill to provide for the security of the property of married women separated from their husbands in Ireland.

March 9. (Lords.) The Lord Chancellor introduced a Bill for the Abolition of Imprisonment for Debt, but not affecting the power of imprisonment possessed by the County Courts, which was read a first time. The Select Committee was nominated for inquiring into all the circumstances connected with Mr. Edmunds's resignation.

(Commons.) In Committee of Supply, after a long discussion as to the present state of the royal navy, the number of men was agreed to; with 2,945,006*l.* for wages, and 1,325,694*l.* for victuals and clothing; and on the motion of Sir R. Peel, 175,650*l.* was voted for the second moiety of the sum payable for the redemption of the Scheldt Toll.

March 13. (Lords.) The Earl of Clarendon introduced the Public Schools Bill, which was read a first time; the British Kaffraria Bill, and the Election Petitions Act (1848) Amendment Bill, were read a second time.

(Commons.) The Colonial Naval Reserve Bill was read a second time; the Affirmations (Scotland) Bill was read a third time and passed; and Sir R. Peel obtained leave to introduce a Bill for the better registration of parliamentary voters in counties in Ireland.

March 15. (Lords.) The Felony and Misdemeanor Evidence and Practice Bill was read a second time; and the British Kaffraria Bill a third time and passed.

(COMMONS.) The Marquis of Hartington brought forward the Army Estimates in a Committee of Supply, which he detailed as amounting in the whole to 14,348,447*l.*, a decrease from the previous year of 495,641*l.*; some discussion took place, and the House resumed, when the Marine Mutiny Bill was read a second time; the Colonial Naval Defence Bill, the Metropolis Main Drainage Extension Bill, and the Qualification for Offices Abolition Bill, passed through Committee.

March 17. (COMMONS.) The Union Officers (Ireland) Superannuation Bill was read a second time; the Bank Notes Issue Bill passed through Committee; the Colonial Naval Defence Bill, and the Metropolitan Main Drainage Extension Bill, were read a third time; and Sir C. Wood brought in Bills to enlarge the power of the Governor-General of India in Council, and to make further provisions respecting the territorial jurisdiction of the High Courts in India.

March 22. (COMMONS.) The Small Benefices (Ireland) Act Amendment Bill, and the Married Women's Property (Ireland) Bill, were read a second time; and opposition was made to the second reading of the Railway Travelling (Ireland) Bill, which was to compel the running of a limited number of Sunday trains, and ultimately the Bill was rejected by 42 to 39.

March 23. (LORDS.) Earl Russell laid on the table the formal notice from the Government of the United States of the termination at the end of a year of the reciprocity treaty between itself and Canada; and expressing his regret that anything should disturb our amicable relations with the American Government, hoped that within the twelvemonth some satisfactory agreement or convention might be arranged. The Private Bill Costs Bill was read a second time; and the Felony and Misdemeanors Evidence and Practice Bill passed through Committee.

(COMMONS.) The Drainage and Improvement of Lands (Ireland) Bill was read a second time; and the Qualification for Offices Abolition Bill was read a third time and passed.

March 27. (COMMONS.) Mr. Villiers moved the second reading of the Union Chargeability Bill, by which the charge for maintenance of the poor is removed from the separate parishes, and thrown on the common fund. Sir R. Knightly opposed it, and moved as an amendment that it would be inexpedient to legislate on the subject during the present session, and he was supported by Sir E. Dering, Mr. Bentinck, Mr. Floyer, Sir J. Trollope, and others. The second reading was supported by Lord Henley, Mr. Scully, Mr. Neate, Mr. Walter, and others; and ultimately carried by 203 to 131. The Herring Fisheries (Scotland) Bill was read a third time and passed.

March 28. (LORDS.) The Herring Fisheries (Scotland) Bill was read a first time; the Colonial Naval Defence Bill was read a second time; and the Bankruptcy and Insolvency (Ireland) Act Amendment Bill was read a third time and passed.

(COMMONS.) The Married Women's Property (Ireland) Bill passed through Committee; the Marine Mutiny Bill, and the Drainage and Improvement of Lands (Ireland) Bill, were read a third time and passed. The East India (Governor-General's Powers) Bill, and the East India High Courts Bill, passed through Committee.

March 29. (COMMONS.) The Small Benefices (Ireland) Act Amendment Bill passed through Committee; and the Mutiny Bill and the Consolidated Fund Bill were read a third time and passed.

March 30. (LORDS.) Lord Kinnaird introduced a Bill for remedying some of the evils in the working of metalliferous mines, which

was read a first time; and the Colonial Naval Defence Bill was read a third time and passed.

(COMMONS.) The debate on the Courts of Justice Concentration (Site) Bill, was resumed, and ultimately the Carey-street site was adopted, and was passed through Committee, without a division. The Court of Chancery (Ireland) Bill was opposed by Mr. Whiteside, who moved that it be referred to a Select Committee, which was negatived by 68 to 30; the Metropolitan Houseless Poor Bill was read a second time. The Union Officers (Ireland) Superannuation Bill was read a third time and passed. The Inclosure Bill passed through Committee; as did the Sheep and Cattle Bill; the County Voters' Registration Bill was read a second time; and the Married Women's Property (Ireland) Bill was read a third time and passed.

March 31. (COMMONS.) The East India (Governor-General's Powers) Bill, and the Courts of Justice Concentration (Site) Bill, were read a third time and passed. The Procurators (Scotland) Bill was read a second time. The Inclosure Bill passed through Committee. The Sheep and Cattle Bill was read a third time.

April 3. (LORDS.) The Criminal Juries (Ireland) Bill was read a second time. The Public Schools Bill was opposed by the Earl of Derby, and objected to by several other lords, chiefly as to the appointment of Government nominees among the governing bodies; but after a long debate the second reading was agreed to.

(COMMONS.) On the order for going into a Committee of Supply, Lord Palmerston, Mr. Disraeli, and Mr. Bright gave their tributes of praise, and lamented the loss of Mr. Cobden, who had died on the previous day. The Navy Estimates were then proceeded with, and various items agreed to, amid considerable opposition; as were also some of the items of the Civil Service Estimates.

April 4. (LORDS.) The Bank of Ireland Bill was read a second time; the Drainage and Improvement of Lands (Ireland) Bill was read a third time and passed; as were also the Marine Mutiny and Mutiny Bills; and the Public Schools Bill was referred to a Select Committee.

April 5. (COMMONS.) The Land Debentures (Ireland) Bill was examined in Committee, and some amendments adopted; the second reading of a Bill for the repeal of the Tories, Robbers, and Rapparees (Ireland) Act was agreed to; the Locomotives on Roads Bill was read a second time; and the Metropolitan Houseless Poor Bill was discussed in Committee, and some proposed amendments were introduced, one being to render the measure permanent.

April 24. (COMMONS.) The Army and Navy Estimates passed through Committee; the Report of the Committee of Supply, was brought up and agreed to; the Metropolitan Houseless Poor Bill, and the India Office (Site and Approaches) Bill were read a third time and passed; the Lancaster Court of Chancery Bill, the Police Superannuation Bill, and the Land Drainage Supplemental Bill, were read a second time.

April 27. (COMMONS.) Mr. Gladstone made his financial statement for the year. He said that the estimated expenditure as contained in the Appropriation Bill had been 67,000,000*l.*, while the actual expenditure had been less to the amount of 611,000*l.*; the estimates of the revenue had been exceeded by the actual receipts in every branch, and the result was a clear surplus, after deducting 620,000*l.* for fortifications, of 3,231,000*l.* With this surplus he proposed to effect reductions which would occasion an estimated loss to the revenue this year, of 3,778,000*l.* and on the financial year of 5,420,000*l.*

The Trusts Administration (Scotland) Bill, and the Lancaster Court of Chancery Bill, passed through Committee; and the Lands Drainage Supplemental Bill was read a third time and passed.

April 28. (Lords.) The Courts of Justice Building Bill was read a second time; though opposed by Lord St. Leonards and Lord Redesdale; as was also the Courts of Justice Concentration (Site) Bill without opposition.

May 1. (Lords.) Earl Russell moved an Address to the Queen, expressive of the sorrow and indignation with which their lordships had heard of the assassination of President Lincoln, and he informed the House that the Queen had written a letter to Mrs. Lincoln, "from a widow to a widow," offering her condolence. The motion was seconded by the Earl of Derby, and agreed to unanimously. The Common Law Courts Fees Bill was read a second time; and the Qualification for Offices Abolition Bill was thrown out on the second reading, by 72 to 49.

(Commons.) Sir George Grey moved an Address similar to that in the Lords, which was seconded by Mr. Disraeli, and agreed to unanimously. The Bank Notes Issue Bill passed through Committee. The Partnership Amendment Bill was, after a division of 136 to 39, read a second time.

May 2. (Lords.) The Public Schools Bill was referred to a Select Committee. The Courts of Justice Building Bill and the Concentration (Site) Bill, passed through Committee after some opposition. Captain Jervis moved an Address to her Majesty, praying for redress to certain Indian officers, who complained of injury arising from certain military regulations. It was opposed by the Government, but carried on a division, by 49 to 36. The Bank Notes (Ireland) Bill was read a first time. The Lancaster Court of Chancery Bill, the Oxford University (Vinerian Foundation) Bill, and the Sewage Utilization Bill, were read a third time and passed.

May 3. (Commons.) Mr. Baines moved the second reading of the Borough Franchise Extension Bill. Lord Elcho opposed it, moving the previous question. It was also opposed by Mr. Black, Mr. Lowe, and others, and supported by Mr. Bazley, Mr. Leatham, and others, but the debate was not finished, and before the day of adjournment was fixed the time for closing had arrived, and the House adjourned in confusion.

May 4. (Lords.) The Record of Ireland (Title) Bill, the Sheep and Cattle Bill, the Union Officers (Ireland) Superannuation Bill, the Land Drainage Supplemental Bill, were read a second time. The Local Government Supplemental Bills, Nos. 1 and 2, and the Metropolitan Main Drainage Extension Bill, were read a third time and passed. The Report of the Committee appointed to investigate the circumstances connected with the resignation of Mr. L. Edmunds, was laid on the table of the House.

(Commons.) The Constabulary Force (Ireland) Act Amendment Bill was read a second time. A Bill for granting Retiring Pensions to Colonial Governors was introduced; a Bill for Removing Tolls on Turnpike Roads, and providing otherwise for their maintenance, was read a first time; as was also a Bill for regulating the keeping of dogs in Ireland.

May 5. (Lords.) Lord Lyttelton gave notice of a motion for a Select Committee to inquire into the constitution and operation of the Final Court of Appeal in Ecclesiastical Cases. The Common Law Courts Fees Bill, the Inclosure Bill, and the Herring Fisheries (Scotland) Bill, were read a third time and passed; the Land Drainage

Supplemental Bill, and the Local Government Supplemental Bills, Nos. 1 and 2, were passed through Committee.

(Commons.) The Writs Registration (Scotland) Bill was read a second time; the Bank Notes Issue Bill, and the Tories, Robbers, and Rapparees Bill were considered in Committee; and the Attorney-General obtained leave to bring in a Bill to abolish forfeiture for treason and felony.

May 8 (Lords.) The Courts of Justice Building and the Concentration (Site) Bill, were read a third time, after the adoption of two amendments, proposed by Lord St. Leonards and Lord Redesdale.

(Commons.) The debate on the Borough Franchise Bill was resumed. The second reading was supported by Sir G. Grey, Mr. Stansfeld, and Sir F. Goldsmid, and opposed by Mr. Gregory, Mr. Horsman, and Mr. Disraeli, and rejected on a division by 288 to 214.

May 9. (Lords.) The royal assent was given by commission to the Law of Evidence Amendment Bill, the East India (Governor-General's Powers) Bill, the Bankruptcy and Insolvency (Ireland) Amendment Bill; the Metropolitan Drainage Extension Bill, the Inclosure of Lands Bill, the Herring Fisheries (Scotland) Bill, the Land Drainage Supplemental Bill, the Local Government Supplemental Bills, Nos. 1 and 2, and a number of private Bills. The Record of Title (Ireland) Bill, and the Sheep and Cattle Bill, were considered in Committee; the Union Officers (Ireland) Superannuation Bill was read a second time, on a division of 73 to 46. On the motion of Earl Granville, the resolution of the House for granting a retiring pension of 800*l.* a year to Mr. L. Edmunds, was rescinded.

May 10. (Commons.) The County Voters Registration Bill passed through Committee, receiving several amendments.

May 11. (Lords.) The District Church Tithes Bill, the Record of Titles (Ireland) Bill, the Sheep and Cattle Bill, and the Union Officers' (Ireland) Superannuation Bill, passed through Committee. The County Courts Equitable Jurisdiction Bill was read a third time and passed.

(Commons.) The Prisons (Scotland) Act Amendment Bill passed through Committee; the Customs and Inland Revenue Bill was read a second time; and Mr. D. Griffith obtained leave to bring in a Bill to enable the Postmaster-General to sit in the House of Commons.

May 12. (Lords.) The Record of Title (Ireland) Bill, the Sheep and Cattle Bill, and the Union Officers' (Ireland) Superannuation Bill, were read a third time and passed.

(Commons.) In a Committee of Supply a number of items on the Civil Service Estimates were voted; the Customs and Inland Revenue Bill passed through Committee; the Dogs Regulation (Ireland) Bill, the Local Government Supplemental (No. 4) Bill, and the Ecclesiastical Leasing Act Amendment Bill, were read a second time.

May 15. (Lords.) The Married Women's Property (Ireland) Bill, and the Isle of Man (Disafforestation) Compensation Bill, passed through Committee; and the District Churches Tithe Bill was read a third time and passed.

(Commons.) The Salmon Fishery Act Amendment Bill was read a second time; the Customs and Inland Revenue Bill, the Prisons (Scotland) Amendment Bill, the Lahore Bishopric Bill, the Mortgage Debentures Bill, and the Locomotives on Roads Bill, were read a third time and passed; the Game (Ireland) Bill was thrown out; and the Bill for the Better Management of County Infirmaries in Ireland was read a first time.

May 16. (Lords.) The Sewage Utilization Bill was read a second time; the District Church Tithes Bill was read a third time and

passed; the Oxford University (Vinerian Foundation) Bill was read a second time; the Isle of Man (Disafforestation) Compensation Bill was read a third time and passed.

(COMMONS.) The Metropolitan Market Bill was read a second time.

May 17. (COMMONS.) The Roman Catholic Oaths Bill was read a second time, after a strenuous opposition from Mr. Lefroy and Mr. Whiteside, and a division of 190 to 134. Mr. Baring introduced a Bill for establishing a Fire Brigade within the metropolis, which was read a first time.

May 18. (LORDS.) The Customs and Inland Revenue Bill, the Police Superannuation Bill, and the Companies' Workmen's Education Bill, were read a second time; the Married Women's Property (Ireland) Bill was read a third time and passed.

(COMMONS.) In Committee on the Union Chargeability Bill, Mr. Henley moved the insertion of a clause repealing the Acts authorizing the removal of the chargeable poor to any other union or parish, or to Ireland or Scotland. Mr. Villiers opposed it as endangering the passing of the Bill by going too far; and after a discussion it was negatived by 184 against 110. An amendment proposed by Mr. Kekewich, that one year's residence should give a settlement was agreed to, and the Bill was reported. The Law of Partnership Amendment Bill, and the Drainage and Improvement of Land Acts (Ireland) Amendment Bill, also passed through Committee. The Dockyards Extension Bill, and the Churches and Chapels (Scotland) Exemption Bill were read a second time; and the Land Debentures (Ireland) Bill was read a third time and passed. The Public-houses Closing Act Amendment Bill passed through Committee after several amendments had been made, as did also the County Voters Registration Bill.

May 18. (LORDS.) The Metropolitan Houseless Poor Bill was read a third time and passed; the Public Offices (Site and Approaches) Bill, and the India Office (Site and Approaches) Bill, were read a second time.

(COMMONS.) On the question of going into Committee of Supply, Mr. Denman moved a resolution that "the annual certificate duty paid by attorneys and solicitors should be abolished;" it was opposed by the Chancellor of the Exchequer, but carried on a division, by 146 against 143. In Committee of Supply a number of items were voted. The Drainage and Improvement of Lands Act (Ireland) Amendment Bill was read a third time and passed. The County Voters Registration Bill, and the Commissioners of Supply Meetings (Scotland) Bill were read a third time and passed.

May 22. (LORDS.) The Sewage Utilization Bill was referred to a Select Committee; and the Tories, Robbers, and Rapparees Bill was read a second time.

(COMMONS.) The Union Chargeability Bill was considered, and some amendments introduced. The General Post-Office (Additional Site) Bill, the Churches and Chapels Exemption (Scotland) Bill, the Dogs Regulation (Ireland) Bill, and the Ecclesiastical Leasing Act Amendment Bill, passed through Committee.

May 23. (LORDS.) The Mortgage Debentures Bill was read a second time.

May 25. (COMMONS.) The Union Chargeability Bill was read a third time and passed; as were also the Partnership Amendment Bill, and the Post-Office (Additional Site) Bill.

May 29. (LORDS.) The Companies' Workmen's Education Bill was reported with amendments; the Clerical Subscription Bill, and

the County Voters Registration Bill passed through Committee; and the Police Superannuation Bill was read a third time and passed.

(COMMONS.) The Constabulary Force (Ireland) Act Amendment Bill was passed through Committee, receiving considerable opposition and some amendment; the Greenwich Hospital Bill, by which the building is to be treated as a hospital for the sick and infirm, while a much larger proportion of its revenues will be expended in out-door pensions, was read a second time; as were also the Colonial Governors' Retiring Pensions Bill, the Crown Suits, &c., Bill; the Drainage and Improvement of Land (Ireland) Bill, and the Piers and Harbours Confirmation Bill; and the Smoke Nuisance (Scotland) Act Amendment Bill was read a third time and passed.

May 30. (LORDS.) The Dogs Regulation (Ireland) Bill was read a second time; the Companies' Workmen's Education Bill was read a third time; the Parsonages Bill passed through Committee; the Report from the Committee on the Clerical Subscription Bill was received; and the County Voters Registration Bill was read a third time and passed.

(COMMONS.) The debate on the Roman Catholic Oath Bill was resumed; Mr. Newdegate in a long speech moved that, "the Committee be deferred for six months," and after a debate the motion was rejected by 193 to 126, and the Bill was considered in Committee and ordered to be reported. Mr. Moffatt called attention to the Report of the Select Committee on the Bankruptcy Act, and moved a resolution that, "the Report deserved the prompt and serious consideration of the Government," which was agreed to.

June 1. (LORDS.) The Metropolis Sewage and Reclamation Bill was read a third time, after a division of 49 to 4; the Sewage Utilization Bill passed through Committee; and the Clerical Subscription Bill was read a third time with amendments.

June 2. (LORDS.) The royal assent was given by commission to the Metropolitan Houseless Poor; the Public Offices (Site and Approaches); Tories, Robbers, and Rapparees (Ireland); Police Superannuation (Ireland); County Voters Registration, and a number of private Bills. The Dogs Regulation (Ireland) Bill passed through Committee; the General Post-Office (Additional Site) Bill was read a second time; the Sewage Utilization Bill was reported with amendments; the Parsonages Bill was read a third time and passed; and the Lancaster Court of Chancery Bill passed through Committee.

June (COMMONS.) The Prisons Bill was considered in Committee. In a conversation on the dreadful accident on the Great Western Railway, Mr. M. Gibson intimated that measures ought to be taken to afford communication between the passengers and the guards. The House then went into Committee of Supply, and various items relating to the British Museum, the Post Office, &c., were agreed to.

June 12. (LORDS.) On the motion of Earl Granville, the Union Chargeability Bill was read a second time, after an amendment proposed by the Duke of Rutland, for referring it to a Select Committee had been negatived by 86 against 24.

(COMMONS.) In Committee on the Roman Catholic Oath Bill, Sir H. Cairns moved the restoration of the words proposed to be omitted from the prescribed oath of the 10th Geo. IV. cap. 7, § 2, which was negatived by 166 against 147; and the Bill was ordered to be reported. The Record of Titles (Ireland) Bill, occasioned a long discussion in passing through Committee; and the Poor Law Board Continuance Bill, after a division of 76 to 69, was read a second time. The Constabulary Force

(Ireland) Amendment Bill, was considered in Committee, and some amendments agreed to. The Chancellor of the Exchequer introduced a Bill to consolidate the offices of Comptroller of the Exchequer and Chairman of the Commissioners for Auditing Public Accounts, which was read a first time.

June 13. (Lords.) The Public-house Closing Act Amendment Bill, passed through Committee; the Partnership Amendment Bill, and the Land Debentures (Ireland) Bill, were read a second time; the Sewage Utilization Bill was read a third time; and the Local Government Supplemental Bills, Nos. 3 and 4, were each forwarded a stage.

June 14. (Commons.) Mr. Göschen moved the second reading of the Tests Abolition (Oxford) Bill, which was supported by Mr. G. Duff, Mr. W. Foster, Mr. Hennessy, Mr. Neate and others, and opposed by Mr. Gladstone, Sir W. Heathcote, Mr. G. Hardy, Mr. Henley, and others; the second reading was agreed to on a division of 206 to 190. The Penalties Law Amendment Bill passed through Committee; the Colonial Laws Validity Bill; the Colonial Marriages Validity Bill, and the Lunatic Asylum Amendment Bill, were read a third time and passed; and the report on Fortifications and Works was brought up and agreed to.

June 15. (Lords.) The Partnership Amendment Bill passed through Committee; the Drainage and Improvement of Lands Acts (Ireland) Amendment Bill, and the Provisional Orders Confirmation Bill were read a second time, as was also the Land Debentures Bill, which was then referred to a Select Committee.

(Commons.) The Malt Duty Bill, and the Sugar Duties and Drawbacks Bill passed through Committee. The Chancellor of the Exchequer moved the second reading of the Bill for consolidating the office of the Comptroller of the Exchequer with that of the head of the Board of Audit, which, after some opposition, was agreed to. The Inland Revenue Bill passed through Committee, and was ordered to be reported. The Constabulary Force (Ireland) Act Amendment Bill was read a third time; after a division of 135 to 43, leave was given to bring in a Bill to continue and amend the Peace Preservation (Ireland) Act; the Roman Catholic Oath Bill was read a third time and passed; the Record of Titles (Ireland) Bill passed through Committee; the Navy and Marines Wills Bill was read a third time and passed; the Court of Chancery (Ireland) Bill was withdrawn; the Parsonages Bill was read a second time; the Ecclesiastical Commission Superannuation Allowance Bill passed through Committee, and the House was counted out at 2 a. m.

June 16. (Lords.) The Union Chargeability Bill passed through Committee; and the Dogs Regulation (Ireland) Bill was read a third time and passed.

(Commons.) The Salmon Fishery Act Amendment Bill passed through Committee. Mr. H. Berkeley moved a resolution, providing that a trial should be given to the vote by ballot, which was opposed by Lord Palmerston, and negatived by 118 to 74; the Fortifications Expenses Bill was read a second time; the Trusts Administration (Scotland) Bill, the Crown Suits Bill, and the Parsonages Bill, passed through Committee; and the Penalties Law Amendment Bill was read a third time and passed.

June 19. (Lords) The royal assent was given by commission to the District Church Tithes Bill, Married Women's Property (Ireland) Bill, Common Law Courts (Fees) Bill, Dogs Regulation (Ireland) Bill, the Courts of Justice (Site and Buildings) Bills, the Lancaster Court of Chancery Bill, and about 50 private Bills. The Statute

Law Revision Bill was read a first time. Lord St. Leonards moved the second reading of a Railway Passengers Bill, forbidding the locking of both doors of the carriages; but withdrew the motion on the representation that it was not desirable to remove responsibility from railway directors. The Prisons (Scotland) Act Amendment Bill, the Smoke Nuisance (Scotland) Act Amendment Bill, the Colonial Laws Validity Bill, and others, were read a second time; the report of the Committees on the Partnership Act Amendment and Union Chargeability Bills were received; the Dockyards Extension Bill, and the Drainage and Improvement of Land (Ireland) Amendment Bill, were read a third time and passed.

(COMMONS.) The Attorney-General withdrew the Bill for the repeal of forfeiture in cases of treason and felony; in Committee of Supply a variety of items were voted, some relating to the Post-Office, the Woods and Forests, and 20,000*l.* for the purchase of a site for the enlargement of the National Gallery; 200,000*l.* for the New Courts of Justice; and 63,915*l.* for Greenwich Hospital. The report of the Committee on the Greenwich Hospital Bill was received; the Fortifications Expenses Bill passed through Committee; the Peace Preservation (Ireland) Bill was read a second time, after a division of 76 to 29. The Colonial Governors' Retiring Pensions Bill passed through Committee; the Crown Suits Bill and the Sugar Duties and Drawbacks Bill were read a third time and passed; and the Carriers Act Amendment Bill was read a second time.

June 20. (LORDS.) The Railway Debentures Registry Bill was read a second time; the report of the Committee on the Public-houses Closing Act Amendment Bill, was received and agreed to; the Locomotives on Roads Bill passed through Committee; the Admiralty Acts Repeal Bill, the Admiralty Powers Bill, the Dockyard Ports Regulation Bill, the Prisons Bill, and the Small Benefices (Ireland) Bill, were read a second time; the Land Debentures (Ireland) Bill, passed through Committee, and the Union Chargeability Bill was read a third time and passed.

(COMMONS.) The Fire Brigade (Metropolis) Bill passed through Committee. The Turnpike Tolls Abolition Bill was withdrawn, and the Peace Preservation (Ireland) Act Amendment Bill passed through Committee.

June 21. (COMMONS.) The Municipal Corporations (Ireland) Bill, the Bank Notes (Ireland) Bill, the Educational and Charitable Institutions Bill, and the Railway Clauses Bill, were withdrawn, or adjourned for three months. The Parsonages Bill, the Peace Preservation (Ireland) Act Amendment Bill, and the Salmon Fishery Act Amendment Bill, were read a third time and passed. The Indemnity Bill, the Expiring Laws Bill, and the Appropriation Bill, were read a first time.

June 22. (LORDS.) The Fortifications Expenses Bill, the Malt Duty Bill, the Trusts Administration (Scotland) Bill, and the Post Office Additional Site Bill, were read a second time; the Trespass (Scotland) Bill, the Ecclesiastical Leasing Act Amendment Bill, the Churches and Chapels Exemption (Scotland) Bill, the Colonial Acts Validity Bill, the Colonial Marriages Validity Bill, and the Defence Act Amendment Bill, were read a third time and passed.

(COMMONS.) The Clerical Subscription Bill was read a second time, after a long discussion, chiefly as to the sense in which the Houses of Convocation were to concur; the Colonial Governors' Retiring Pensions Bill, and the County Courts Equitable Jurisdiction Bill, passed through Committee; the Appropriation Bill and the Indemnity Bill were read a second time.

June 26. (Lords.) The Earl of Devon moved the second reading of the Roman Catholic Oath Bill, which was opposed by the Earl of Derby, the Earl of Harrowby, Lord St. Leonard's, and Lord Chelmsford, and supported by Earl Russell, Earl Grey, the Marquis of Clanricarde, and Lord Lyveden; but ultimately negatived by 84 votes against 63. The Carriers Act Amendment Bill, and the Foreign Jurisdiction Act Amendment Bill were read a second time; several Bills passed through Committee, the Partnership Act Amendment Bill, the Fortifications Expenses Bill, and the Malt Duty Bill, were read a third time and passed, and the Appropriation Bill was read a first time.

(Commons.) The Appropriation Bill, and the Colonial Governors' Retiring Pension Bill were read a third time and passed; the Clerical Subscription Bill, and the Turnpike Acts Continuance Bill, passed through Committee: the Inland Revenue Bill, the Indemnity Bill, the Compound Warehousing Bill, were read a third time and passed; and the Railway Debentures Registry Bill was withdrawn.

June 27. (Lords.) The Prisons Bill, the Greenwich Hospital Bill, the Carriers Act Amendment Bill, and some others, passed through Committee; the Fire Brigade (Metropolis) Bill, the Comptroller of the Exchequer, and Public Audit Bill, the Indemnity Bill, and others were read a second time; the Land Debentures (Ireland) Bill, the Constabulary Force (Ireland) Act Amendment Bill, and others, were read a third time and passed.

(Commons.) Col. Wilson Patten called attention to the report of the Committee on the Court of Referees on Private Bills, observing on the usefulness of their labours, and suggested the propriety of paying the chairmen; after some discussion, the consideration was postponed. The County Courts Equitable Jurisdiction Bill, the Expiring Laws Continuance Bill, and the Poor Law Board Continuance Bill were read a third time and passed.

June 28. (Commons.) The Postmaster-General Bill was read a second time; the Capital Punishment within Gaols Bill, the Tests Abolition (Oxford) Bill, and the Bank Notes Issue (Scotland) Bill, were withdrawn; the Clerical Subscription Bill, the Turnpike Act Continuance Bill, and the Colonial Docks Loan Bill, were read a third time and passed.

June 29. (Lords.) The royal assent was given by commission to the Drainage and Improvement of Land (Ireland) Amendment Bill, the Sheep and Cattle Trespass (Scotland) Bill, the Ecclesiastical Leasing Bill, the Sewage Utilization Bill, the Union Chargeability Bill, and a number of other public and private Bills. The Crown Suits, &c., Bill, and the Poor Law Board Continuance Bill, were read a second time; the Carriers' Act Amendment Bill, the Foreign Jurisdiction Act Amendment, and the Sugar Duties and Drawbacks Bill, were read a third time and passed.

(Commons.) Sir Charles Wood, in Committee, made his financial statement on the East Indian Budget, explaining the cause of the deficiency in the revenue, and of the means taken or about to be taken, to remedy it; the resolutions he proposed were agreed to, after a short discussion. The Admiralty Acts Amendment Bill, and the Admiralty Powers Bill passed through Committee; the Lords' Amendments on the Smoke Nuisance (Scotland) Bill, the Small Benefices (Ireland) Act Amendment Bill, the Locomotives on Roads Bill, and the Land Debentures (Ireland) Bill, were considered and agreed to.

June 30. (Lords.) The Colonial Governors' Retiring Pension Bill, and the Penalties Law Amendment Bill, were read a second time; the Prisons Amendment Bill, the Greenwich Hospital Bill, the Salmon

Fishery Act Amendment Bill, the Fire Brigade (Metropolis) Bill, the Comptroller of the Exchequer and Public Audit Bill, the Indemnity Bill and the Compound Spirits Warehousing Bill, were read a third time and passed.

(COMMONS.) The case of Mr. Consul Cameron, who had been thrown into prison by the Emperor of Abyssinia, was brought before the House by Sir Hugh Cairns, who contended that the Government had neglected him; Mr. Layard replied by asserting that Mr. Cameron had become involved by his own indiscretion, and that the Government had done all they could to obtain his release. The Admiralty Acts Repeal Bill, and the Admiralty Powers Bill, were read a third time and passed; and the Foreign Jurisdiction Act Amendment Bill was read a second time.

July 3. (LORDS.) Lord Ebury moved a resolution declaring that the evils of a compulsory and indiscriminate use of the Burial Service, demanded the attention of the legislature, which was opposed by the Archbishop of Canterbury and the Bishop of London, and negatived by 43 against 20.

(COMMONS.) The Naval Discipline Act Amendment Bill was read a second time, and the Foreign Jurisdiction Act Amendment Bill passed through Committee. Mr. Hunt, in a speech of great extent, moved a resolution that the evidence given in the case of Leonard Edmunds, and in that of the Leeds Bankruptcy Court, showed a laxity of practice and a want of caution on the part of the Lord Chancellor, that was "highly reprehensible, and calculated to throw discredit on the administration of the high offices of the state." The Lord Advocate defended the judgment of the Committee, which had absolved the Lord Chancellor from blame. Mr. Bouverie moved an amendment, acquitting the Lord Chancellor of any corrupt motives in the appointments to the Leeds Bankruptcy Court; but that the grant of the pension showed a "laxity of practice and a want of caution with regard to the public interests on the part of the Lord Chancellor, in sanctioning the grant of retiring pensions to public officers, against whom grave charges were pending," was highly reprehensible. Mr. Hunt withdrew his amendment in favour of this, and after a long debate Mr. Bouverie's amendment was carried unanimously.

July 4. (LORDS.) Earl Granville announced that in consequence of the vote of the House of Commons, with respect to the Lord Chancellor, that noble lord had tendered his resignation, and that it had been accepted. The Penalties Law Amendment Bill was read a third time and passed.

(COMMONS.) The resignation of the Lord Chancellor was announced by Lord Palmerston. The Naval Discipline Act Amendment Bill, and the Foreign Jurisdiction Act Amendment Bill, were read a third time and passed.

July 5. (LORDS.) The royal assent was given by commission to 212 Bills. The Lord Chancellor gave an explanation of his resignation, glanced at the measures of law reform he had proposed, and thanked the House for the kindness uniformly displayed towards him.

July 6. (LORDS.) The Commons were summoned, and the Queen's Speech was read by commission. It thanked the Houses for several of the measures they had passed; for the supplies voted; and for their attention to the business of the country; it congratulated them on the general prosperity, and the beneficial results from remission of taxation and the financial arrangements. It announced the friendly relations existing with all the European powers, and the cessation of the war in America. The immediate dissolution of the House of Commons, and the issue of writs for a new election.

XII.—PRIVATE BILLS OF THE PARLIAMENT, 1865.

[27-28 Victoriæ.]

I. Numerical Abstract of the Private Bills of the Session of 1865:

New Bills introduced into the House	532
Bills read a first time	520
—— read a second time	504
—— read a third time	405
—— passed	392

II. Comparative Classification of Bills for Ten Years, as given in the House of Commons List:—

Bills Passed.	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865
Agriculture . .	4	2	2	4	4	6	4	4	2	3
Companies . .	4	4	7	12	8	9	5	7	8	6
Improvements in Towns, &c. .	38	43	44	25	44	49	43	47	66	84
Internal Communication. . .	87	96	85	117	136	173	166	170	225	267
Navigation, &c. .	7	21	14	18	12	12	10	15	29	22
Private Regulation, &c. . .	21	15	15	10	17	19	9	8	17	10
Totals . .	161	181	167	186	221	268	237	251	347	392

The average number of Private Bills passed from 1856 to 1860 inclusive was 183; the average number from 1861 to 1865 inclusive has been 298; the session of 1865 giving the highest number since 1846.

III. Abstract of Petitions and Private Bills in the Session of 1865:—

	Bills Introduced.	Passed.	Not Passed.
I. Agriculture:—			
1. Inclosures.	1	—	1
2. Drainage	4	3	1
II. Companies	6	6	—
III. Improvements in Towns and Districts:—			
1. General Improvements	14	13	1
2. Water	34	25	9
3. Gas	41	32	9
4. Markets, Bridges, &c.	11	8	3
5. Municipal Regulation, &c.	15	6	9
IV. Internal Communication:—			
1. Roads	25	17	8
2. Railways	343	250	93
V. Navigation:—			
1. Rivers	6	4	2
2. Harbours, Piers, and Docks	19	15	4
3. Miscellaneous	3	3	—
VI. Private Regulation	10	10	—
Totals	532	392	140

I. AGRICULTURE:—

Drainage:—121. For reclaiming from the sea certain lands on and near the eastern and south-eastern coast of Essex; for making conduits from the North London Main discharging sewers to the coast of Essex; for utilizing the sewage of North London.

124. For the further improvement of the drainage and navigation by the river Witham in Lincolnshire, and for amending the Acts relating thereto.

231. To revive and extend the powers of the river Fergus Navigation and Embankment Company; and for authorizing the company to embank and reclaim from the sea other waste lands on the sides of the river Fergus in Clare.

II. COMPANIES:—

85. To empower the Port Talbot Company to raise additional capital.

92. For enabling the Agra and Masterman's Bank (Limited) to divide the original shares of £100 in the capital of the company into two shares of £50 each.

123. To vary, extend, and consolidate the powers of the Northern Assurance Company.

129. For the incorporation and better regulation of the affairs of the Assam Company.

148. For the incorporation of the Ham Oyster Fishery Company, and for authorizing them to establish and maintain an oyster fishery near the north-east coast of the Isle of Sheppey in Kent.

227. For the better regulation of the Rochester Oyster Fishery.

III. IMPROVEMENT OF TOWNS AND DISTRICTS:—

General Improvements:—3. To enable the Metropolitan Board of Works to open a new street in Whitechapel, and to remove Middle Row, Holborn, all in Middlesex.

20. To authorize the construction of new and widening and altering of existing streets and other works and improvements in Liverpool.

27. For the improvement and regulation of the proposed new town of West Worthing in the parish of Heene in Sussex

90. For enabling the mayor, aldermen, and citizens of Manchester to construct new streets, enlarge markets, improve the channel of the river Medlock, and to effect further improvements in the said city.

140. For the extension of the boundaries of the municipal borough and district of Halifax, and otherwise improving the said borough; to amend and extend the several powers of the Acts relating thereto.

164. To authorize the opening of certain new streets in Belfast, and to confer certain powers upon a Company and the mayor, aldermen, and burgesses of Belfast for such purposes.

195. For the improvement of Southport and the neighbourhood thereof.

214. For the further improving of Blackpool and the rest of the township of Layton with Warbrick in Lancashire; and for other purposes, and of which the short title is Blackpool Improvement Act, 1865.

225. To enable the St. Clement Danes Improvement Company to make certain improvements in the parish of St. Clement Danes.

250. For the improvement and better government of Newcastle-upon-Tyne.

254. For regulating the police, lighting, draining, and improvement of Port-Glasgow; for supplying with water the said burgh and places adjacent.

300. To consolidate and amend the provisions relating to the police of Greenock; to authorize certain improvements in the said town.

311. For defining and extending the powers of the corporation of Oldham in relation to the improvement of streets in the borough, and to police and other matters of local government, and to gas and water supply.

Water:—5. To confer further powers upon the Brighton, Hove, and Preston Constant Service Waterworks Company.

12. To authorize the mayor, aldermen, and burgesses of Bolton to construct an aqueduct and other works in connection with the intended Wayoh Reservoir; and to make further provisions for the regulation of the borough.

16. To incorporate the Banbury Water Company (Limited), and to make further provision for the supply of water to Banbury and the neighbourhood thereof.

17. For better supplying with water of Luton in Bedfordshire.

26. For granting further powers to the Bristol Waterworks Company, and for the amendment of their existing Act.

34. For better supplying with water of St. Albans and the parishes and places of St. Albans, St. Peter, St. Michael, St. Stephen, and Saundridge, all in Hertfordshire.

47. For better supplying with water the inhabitants of Runcorn, Weston, and Hatton, in the parish of Runcorn, Cheshire.

59. To amend the Galway Commissioners Waterworks Act, 1863.

9. For authorizing the Local Board for the district of Oswestry and the liberties thereof to provide a better supply of water to the district, and to complete the sewerage of the district, and to dispose of the sewage for irrigation.

65. To enable the Local Board of Health for the district of Llanelly to construct waterworks, and supply their district and adjoining places with water.

69. To authorize the Commissioners of the Glasgow Corporation Waterworks to construct a bridge for carrying the aqueduct from Loch Katrine to Glasgow over the River Endrick; to provide for the better distribution of water.

75. For better supplying of Horsforth in the West Riding of Yorkshire with water.

99. For enabling the Local Board of Carnarvon to supply their district with water.

106. For better supplying with water of Kidderminster, Stourport, and Bewdley, and certain parishes and places adjacent thereto, in Worcestershire,

108. For more effectually paving, lighting, and improving of Ross in Herefordshire, for maintaining and providing markets within such town, and for supplying the same with water.

109. For better supplying of Rhyl and places in the surrounding district with water.

110. For better supplying of Gainsborough and the neighbourhood thereof with water.

112. For supplying with water Ayr and places adjacent.

115. To authorize the enlargement and maintenance of existing waterworks in Glossop in Derbyshire, and the construction of new

waterworks, and to authorize the sale of such waterworks, and the purchase thereof.

138. To extend the limits for the supply of water, and to authorize the building of a town hall, by the Local Board of Health for Merthyr Tydfil.

141. To extend the limits of supply of the Neath Water Company, and to authorize them to construct additional works.

145. For enabling the mayor, aldermen, and citizens of Manchester to construct new works in connection with their waterworks.

165. For empowering the Cheltenham Waterworks Company to extend their works and limits of supply, and to raise a further sum of money.

204. For a better water supply to Tunbridge Wells and places near.

235. For supplying with water the town and neighbourhood of Newtown in Montgomeryshire.

Gas:—2. To regulate the mode of valuation of the underground pipes or works in Glasgow belonging to the City and Suburban Gas Company of Glasgow, for the purpose of assessment under the Glasgow Police Act, 1862.

6. To enable the Rossendale Union Gas Company to raise additional capital.

13. For better supplying with gas the inhabitants of Redhill and of certain places in the neighbourhood thereof in Surrey.

14. To enable the South Metropolitan Gaslight and Coke Company to purchase additional lands; to remove a church in the neighbourhood of their works; and for other purposes relating to the company.

15. For more effectually lighting Folkestone and its neighbourhood with gas.

24. For incorporating the Fareham Gas and Coke Company; for the Increase and Regulation of their capital.

25. To extend the limits within which the Bath Gaslight and Coke Company are authorized to supply gas, and to enable the company to construct a railway or tramway, to erect additional works, to raise further capital.

28. To incorporate the Exmouth Gas, Coke, and Water Company (Limited), and to make further provision for lighting Exmouth and certain neighbouring places with gas.

32. To enable the Crystal Palace District Gas Company to raise additional capital.

35. For enabling the Tyldesley with Shakerley Local Board to supply gas in their district, and in adjoining places.

36. To confer further powers upon the Chesterfield Waterworks and Gaslight Company.

38. For the Supply of Winchester and its neighbourhood with water and with gas, and for incorporating into one company the Winchester Waterworks Company (Limited) and the Winchester Gaslight and Coke Company.

49. For incorporating the Rastrick Gas Company, (Limited,) and extending their powers.

52. For incorporating and granting other powers to the Birstal Gaslight Company.

54. To incorporate a company for better supplying with gas Littleborough in the parish of Rochdale in Lancashire, and the neighbourhood thereof.

55. For better lighting with gas the district of Brierley Hill, and certain parishes and places adjacent thereto, in Staffordshire and Worcestershire.

57. To re-constitute the Preston Gas Company; to authorize them to raise further moneys.

64. To incorporate the Gosport Gas and Coke Company, and to make further provision for lighting with gas Gosport and certain parishes and places in the neighbourhood.

76. For incorporating and granting other powers to the Drighlington and Gildersome Gaslight Company.

77. To authorize the Liverpool United Gaslight Company to increase their capital, and to purchase additional lands.

94. To re-incorporate the Gomersal Gaslight Company, (Limited); to authorize the raising of additional capital.

96. For granting further powers to the Belfast Gaslight Company.

119. To authorize the Hastings and St. Leonards Gas Company to raise a further sum of money.

120. To repeal and consolidate the Acts relating to the Exeter Gaslight and Coke Company and the Exeter Commercial Gaslight and Coke Company; and to confer further powers on the Exeter Gaslight and Coke Company.

126. To authorize the mayor, aldermen, and burgesses of Ripon to purchase the Gasworks of the Ripon Gaslight Company, and to supply gas within the said city and borough and the neighbourhood thereof, in the West and North Ridings of Yorkshire; and to preclude questions as to the style of the city and borough, and the name of the corporation.

128. To repeal, and re-enact with amendments, the provisions of the Act relating to the Leamington Priors Gaslight and Coke Company; to extend the limits of supply thereby authorized; to authorize an increase of capital.

142. To enable the Southampton Gaslight and Coke Company to extend their limits for the supply of gas, and to raise additional capital.

166. For granting certain powers to the Crays Gaslight and Coke Company (Limited).

257. To enable the Torquay Gas Company to increase their capital and extend their works.

286. For granting certain powers to the Bromley Gas Consumers Company (Limited).

189. For better supplying with water Belfast and other places, and for altering and amending the constitution of the corporation of the Belfast Water Commissioners.

302. To amend the Highbridge Markets and Gas Act.

Markets &c.:—7. To dissolve the union subsisting between the visitors of the Lunatic Asylum for Leicestershire and Rutlandshire and the corporation of Leicester, for the admission of lunatic paupers from the said borough into the said asylum, and to empower the said corporation to provide a separate asylum; and to authorize the corporation to establish a market for the sale of hay and other commodities, in lieu of the existing market; and to extend the powers of the said corporation with respect to streets in the said borough.

58. To amend an Act for building a new chapel upon Portsmouth Common, Portsea, in Hampshire.

63. For consolidating and amending the Acts relating to markets and slaughter-houses in Glasgow.

95. For establishing a cattle market at Market Drayton in Shropshire.

152. To give effect to an agreement between the lord provost, magistrates, and council of Edinburgh and the North British Railway Company with reference to the fruit and vegetable market; and for the enlargement of the North British station at Edinburgh.

162. For the better management of the Marsh Estate of the mayor, aldermen, and burgesses of Southampton; and for authorizing them to establish and maintain new markets, and to raise further moneys.

208. For amending the Metropolitan Market Act, 1857.

230. For the incorporation of the Burnley Market Company.

Municipal Regulation, &c.:—70. To make better provision respecting the repayment of money borrowed by the corporation of Sunderland.

73. To enable the corporation of the president, vice-presidents, treasurer, and members of the School for the Indigent Blind to sell and grant leases of the land belonging to them, and to purchase other land.

137. To repeal, consolidate and amend the provisions of the Acts of Parliament relating to the Company of Merchants of Edinburgh; and to enlarge the powers of the said company; to amend the Act relating to Daniel Stewart's Hospital.

183. For separating for certain purposes Belfast from Antrim; and for making better provision respecting contribution by the borough towards the expenses of the county.

187. To amend and enlarge the powers and provisions of the Westminster Improvement and Incumbered Estate Act, 1861; for winding up the affairs of the Commission; for the compulsory purchase of lands and the completion of the improvements; borrowing power.

313. For dividing the parish of St. Philip and Jacob in Bristol; and for forming the out-parish of St. Philip and Jacob into a distinct and separate parish; for making further provision as to the election and appointment of overseers of the poor for the said out-parish, and as to churchwardens of the said out-parish.

IV. Internal Communication :—

Roads:—10. To repeal an Act for making, repairing, and improving certain roads leading to and from Helston in Cornwall, and to make other provisions in lieu thereof.

60. To transfer the Statute Labour Roads in Dundee to the commissioners of police of the said burgh, and to provide for the management and maintenance of the said roads.

80. For more effectually maintaining and repairing several roads adjoining or near to Great Torrington in Devonshire; and for new powers.

144. To extend the term and amend the provisions of the Act relating to the Cromford and Belper Turnpike Road.

160. To amend the provisions of the West Bromwich Improvement Act, 1854, and the West Bromwich Improvement Amendment Act, 1855.

163. To repeal the 4 Vict. intituled An Act for repairing several roads leading from Barnstaple in Devonshire, and for making several new lines of road connected therewith, and to grant more effectual powers in lieu thereof; to convert into turnpike road portions of existing roads.

171. To continue the Winchcomb district of Turnpike Roads Trust in Gloucestershire.

174. For transferring the New North Road or Parliamentary Road, Glasgow, to the board of police of Glasgow.

180. For maintaining, improving, and managing the public roads and bridges in Dumfriesshire.

207. For repairing the road from the guide post below Haddon, out of the Bakewell turnpike road into the Bentley and Ashbourne turnpike road, in Derbyshire.

209. For the Mansfield and Worksop turnpike road in Nottinghamshire and Derbyshire.

212. For maintaining public roads and bridges in Wigtownshire.

215. For continuing the term of the turnpike roads from Brimington and Chesterfield in Derbyshire, to the High Moors in Brampton.

240. For more effectually maintaining and keeping in repair the roads, highways, and bridges in Aberdeenshire; and for making new roads.

262. To stop up part of an existing road called Gloucester Road, formerly called Hogmore Lane, in St. Mary Abbotts, Kensington in Middlesex, and to vest the site thereof in the owners of adjoining lands, and to make a new road of greater width in lieu thereof.

314. For the making and maintaining of Stapenhill Bridge over the river Trent near Burton-upon-Trent, with approaches thereto, and for the discontinuing of Stapenhill Ferry across the river.

336. To repeal the Act relating to the Moses Gate and Ringley branch turnpike roads, and to make other provisions in lieu thereof; and to authorize new works.

Railways.—Of the 250 Bills we give an abridged notice of each, indicating what appears to be new lines, or extension of lines, by printing them in italic.

1. Colne Valley and Halstead; increase of capital.
4. Mistley, Thorpe, and Walton; reduction of borrowing powers.
18. Athenry and Ennis; increase of capital.
19. *Poole to Bournemouth;* authorizing a line.
21. To vest portions of the Blackpool railway in the Lancashire and Yorkshire and Lancashire Union Companies.
22. For widening the Blackpool branch of the Preston and Wyre railway.
23. *Luddenden Valley.*
29. Shrewsbury and North Wales; to raise money, and make deviations.
31. *Metropolitan and St. John's Wood;* extension to *Hampstead.*
37. Carmarthen and Cardigan; to extend time, &c.
39. Lostwithiel and Fowey; further powers.
40. Midland Great Western of Ireland; to create preference shares.
41. *Buckfastleigh, Totnes, &c.;* extension to *Ashburton.*
42. Bristol and Exeter and Devon and Somerset; to confirm an agreement.
43. Great Southern and Western; to create debentures.
44. Kington and Eardisley; for power to divide shares.
45. Stafford and Uttoxeter; further powers.
48. Glasgow and South Western; power to contribute to Glasgow Union.
50. *London, Brighton, and South Coast;* to make new lines from St. Leonards to *Ouse Valley, Tunbridge Wells,* and *Eastbourne* lines.
51. *East London;* to connect certain railways by the *Thames Tunnel.*
53. *Bodmin;* to extend to *Bodmin and Wadebridge* railway.
56. *Newport Pagnell;* to extend to *Olney.*
61. *North Eastern;* a new branch from *Gainford to Forcett.*
62. *Great Eastern;* a new branch from *Somersham to Ramsey.*
66. *London, Brighton, &c.;* to make short junction railways in Surrey.
68. Whitehaven Junction; to enlarge their station.
71. London and South Western and Devon and Somerset; to take the Ilfracombe.
72. North London; additional powers.
74. *Glasgow and South Western;* new line to *Kilmarnock.*
81. Corwen and Bala; to abandon portions of the proposed lines.
82. Weald of Kent; to make deviations.
83. To vest the Carmyllie in the Scottish North Eastern.
84. *Maryport and Carlisle;* to construct the *Derwent* branch.

86. *Whitehaven, Cleator, and Egremont;* extension to *Bigrigg Moor.*
87. *Hexham and Allendale.*
89. London and South Western; to abandon Hammersmith and Kensington lines.
91. *North Eastern;* a branch from Lartington to Middleton.
93. Aylesbury and Buckingham; to raise additional capital.
97. Cheddar Valley; for transference to Bristol and Exeter Company.
98. For a joint station at Bristol for three companies.
100. London and Blackwall; for leasing it to the Great Eastern.
101. Hammersmith and City; to transfer to Great Western and Metropolitan.
102. London and South Western; for raising money, authorizing agreements, &c.
103. *London and South Western;* a line from *Pirbright to Farnham.*
104. *London and South Western;* a line from *Bideford to Great Torrington.*
105. *Great Northern;* from *Hornsey to the Dunstable line near Hertford.*
111. North Eastern; to construct branches, acquire lands, &c.
113. Sligo and Enniskillen; to extend time, and raise capital.
114. Dublin and Antrim; to create preference shares.
116. *London, Blackwall, and Millwall Extension.*
117. Metropolitan; for further powers.
118. Great Eastern; to make certain railways near the metropolis.
122. *Brean Down Harbour;* a connecting line with other lines in Somerset.
125. *North British;* for railways in *Liberton, Lasswade, &c.*
127. West Sussex; for deviation.
130. Kilrush and Kilkee; for extension of time.
131. Plymouth and Dartmoor; for raising additional capital, &c.
132. *Bristol and Exeter;* a new line from *Tiverton to Morebath.*
133. Dunblane, Doune, and Callander; for amalgamation with Scottish Central.
134. Crieff Junction; for amalgamation with Scottish Central.
135. *Caledonian;* a line from *Barrhead to Paisley.*
136. *Caledonian;* a branch from *Balmakeddar to Shielhill.*
139. *Caledonian;* from *Crofthead to Kilmarnock,* with branch to *Beith.*
143. *Whitehaven and Furness;* extension from *Millom to Dalton.*
147. Rickmansworth, Amersham, and Chesham; extension of powers.
149. *Okehampton;* for extension to *Bude and Great Torrington.*
150. Great Eastern; Bishop Stortford, Dunmow, &c., to be vested in.
151. Metropolitan District; for further powers.
153. *Fareham and Netley.*
154. Teign Valley; to raise moneys.
155. Bristol Port and Pier; for consolidating the companies.
156. Cork and Limerick; to issue preference shares.
157. Isle of Wight; enabling to work steam-vessels.
158. Llanelly; to raise more money.
159. *Mid-Wales;* a railway to join the *Central Wales.*
161. *Caledonian;* a branch to *Balerno.*
167. General Terminus and Glasgow Harbour; amalgamation with Caledonian.
168. Inverness and Perth; consolidation with Inverness and Aberdeen.
169. *Sutherland;* from *Bonar Bridge to Brora.*
170. *Carmarthen and Cardigan;* extension to *Kidwelly.*
172. Mold and Denbigh; to raise further money.
173. *Bishop's Castle;* for extension to *Misterley,* on the Shrewsbury line.
175. Carnarvonshire; for extension of time.
176. *Wrexham, Mold, and Connah's Quay;* extension to *Farndon.*
177. *Stonehouse and Nailsworth;* extension from *Dudbridge to Stroud.*
178. Tottenham and Hampstead; for arrangements with Great Eastern.
179. Furness; to raise further moneys.
181. *Wolverhampton to Walsall.*

182. *Great Northern;* a line from *Sleaford to Bourne.*
184. Great Eastern; to raise money with reference to Lowestoft Harbour.
185. *Lugg Valley;* from *Presteign to Llangunllo.*
186. Solway Junction; to make deviations.
190. Denbigh, Ruthin, and Corwen; to raise additional capital.
191. Edgware, Highgate, and London; for a connecting line with Tottenham, &c.
192. A railway from *Hammersmith and City Railway through Fulham.*
193. *Lancashire Union;* for extension to *St. Helens.*
194. Lynn and Sutton; to execute works at Sutton Bridge.
196. *Sunningdale and Cambridge Town;* to make new railways.
198. To transfer the Holywood Branch to the Belfast and Bangor Company.
199. Sevenoaks, Maidstone, and Tunbridge; for extension of time.
200. Edinburgh and Glasgow; to form a station at Glasgow.
201. *Monkland;* to make branch railways in *Lancashire.*
202. *Caledonian;* to make a connecting branch with the *North British.*
203. *Skipton and Wharfdale.*
205. Ogmore Valley and Ely Valley Extension; for amalgamation.
206. *Port Carlisle;* for extension to the *River Caldew and Carlisle Citadel.*
211. Swansea and Aberystwith; for conferring further powers.
213. For a railway across the *Firth of Forth.*
216. *Great Northern;* for making certain short lines at Newark, &c.
217. Monkland and Edinburgh and Glasgow; for amalgamation.
218. *Kidwelly Canal;* to make a railway from *Burry Port to Llanarthney.*
219. West Cornwall; for making arrangements with other companies.
220. *Belfast Central;* to make a railway and tramway to Belfast Harbour.
221. Dublin Trunk Connecting; for deviation.
222. *Dublin, Wicklow, and Wexford; for a connection with Kingstown.*
223. *Dingwall and Skye; from Dingwall to Lochalsh.*
224. Isle of Wight; to raise additional moneys, &c.
226. Stourbridge; to raise additional moneys, &c.
229. *Busby;* for an extension to *East Kilbride, in Lanarkshire.*
232. West Cork; to raise additional capital.
233. *Halesown and Bromsgrove Branch.*
234. *South Wales;* a line from Peterston to Cadoxton-juxta-Barry, &c.
236. *Hoylake;* extension to *New Brighton.*
237. *Sidmouth;* for a new branch, &c.
238. *Spilsby* and *Firsby.*
239. *Swansea Vale, &c.;* for a branch to *Abercrave.*
241. Bishop's Castle; for making communications with other railways.
242. To abolish restrictions on the use of Messrs. Allsop's railways.
243. For constructing a railway in *Burton-upon-Trent.*
244. *Hawes and Melmerby;* for making and maintaining.
245. *Glasgow and South Western;* for new lines to other railways.
246. *Glasgow and South Western;* to make certain railways in Ayrshire.
248. Marple New Mills and Manchester, Sheffield, and Lincolnshire; for amalgamation.
249. *Great Eastern;* branch from *Mellis to Eye, in Suffolk.*
251. North Eastern; to raise additional capital, &c.
252. Perth Station; to incorporate a Committee for management; and
253. To authorize the Committee to erect an hotel.
255. *South Devon;* to make a branch railway at Exeter.
256. *South Northumberland;* for making and maintaining.
258. *Waterloo Station to Whitehall.*
259. West Riding and Grimsby; to raise money, and extend time.
260. *Wrexham and Minera;* for new lines, &c.
261. *Wrexham, Mold, and Connah's Quay;* for extension.
263. Launceston Junction and Bude Canal; for incorporation.
264. *Waterford and Limerick;* branch from *Clonmel to Lismore and Dungarvan.*

265. *Dublin, Rathmines, &c.;* for extension to *Blesinton.*
266. From *Oban* to the Dunblane Railway, near *Callander.*
267. For a new station at Leeds.
268. For authorizing a contribution by the London and South Western to the undertaking of the London, Chatham, and Dover.
269. London, Chatham, and Dover; to make connecting lines.
270. *Stratford-on-Avon to Worcester.*
271. Mold and Denbigh Junction; to abandon old and make new lines.
272. *Scarborough to Whitby.*
273. Tooting, Merton, &c.; for vesting in South Western.
275. West Yorkshire; for raising further money.
276. *West Midland;* for a line to the *Coleford and Pontypool.*
279. *Aboyne and Braemar.*
281. Monmouthshire; to acquire the Brecon and Abergavenny.
282. Budleigh Salterton; for deviations.
283. Aberystwith and Welsh Coast; for deviations.
284. Brecon and Llandovery Junction; for deviations.
285. *Brecon and Merthyr Tydvil Junction;* new lines to *Ivor and Dowlais.*
287. Scottish Central and Caledonian; for amalgamation.
288. *Caledonian;* to make certain branch railways.
289. *Caledonian;* for a branch from *Cleland to Mid-Calder.*
290. *Caledonian;* to extend the *Douglas Branch to Muirkirk.*
291. Aberystwith and Welsh Coast and Cambrian; for amalgamation.
292. *Chester and West Cheshire Junction.*
293. *Coventry to Southam.*
294. *Crieff to Comrie;* and a connection with the Crieff and Methven.
295. For maintaining the Carrig Hylldrem and Portmadoc.
296. To connect *Deal and Walmer and Dover.*
297. Dumfries, Lochmaben, and Lockerby, and Caledonian; for amalgamation.
298. Glasgow and South Western; for amalgamation with various others.
299. Great Western; for conferring additional powers.
301. From *Greenock to Glasgow and South Western and Bridge of Weir.*
303. From *Winterfield Station to Felixstowe, in Suffolk.*
304. London and South Western; authorizing amalgamation, &c.
305. Manchester and Milford; deviations, and extension of time.
306. *Cambrian;* a branch from *Cemmes Road to Dinas Mowddwy.*
307. Newry and Greenore; for deviations.
308. North British and Edinburgh and Glasgow; for amalgamation.
310. From *North London to Alexandra Park,* and *Edgware and Highgate.*
312. *Ross and Monmouth.*
315. *The Talyllyn;* from the *Aberystwith to Maestrefnant.*
316. Vale of Neath; to raise money, &c.
317. *Watchet to Minehead.*
318. London and South Western; for extension in Wiltshire.
319. Gloucester Extension; for raising additional capital.
320. *Acton to Brentford.*
321. West Riding and Grimsby; a line from the *South Yorkshire to Lincoln.*
322. From *Portmadoc to Beddgelert.*
323. Bishop's Castle; for deviations.
324. Brecon and Merthyr Tydfil and Hereford and Hay; amalgamation.
326. Carnarvon and Llanberis; to confer further powers.
327. Great Northern, Midland, &c.; amalgamation with various others.
328. *Edinburgh and Glasgow;* a line from *Glasgow to Coatbridge.*
329. *Furness and Lancaster and Carlisle Union.*
330. Great Northern and Leeds and Halifax; for amalgamation.
331. Great Northern and West Yorkshire; for amalgamation.
332. Lancashire and Yorkshire; for additional powers.
333. London and North Western; for additional powers in England.
334. London and North Western; for additional powers in Wales.

335. Midland; for additional powers.
337. Nantlle; for widening and extension.
338. For a line from *Christian Malford to Beachingstoke, in Wiltshire.*
339. *North Staffordshire; a loop-line in the Staffordshire Potteries.*
340. *Peterborough, Wisbeach, and Sutton;* for extension to *Crowland.*
341. *The Shrewsbury and Potteries Junction.*
342. Sirhowy; for alteration of line.
343. *South Eastern;* for extension at *Greenwich, Woolwich, and Cranbrook.*
344 *The South Essex.*
345. *Strathspey;* for extension.
347. *London, Chatham, and Dover;* for extension.
348. For a line from *Bury St. Edmunds to Thetford.*
349. *Llanelly;* for extension to *The Mumbles.*
350. For a line from *Navan to Kingscourt.*
351. For lines from *Waterford to Dungarvan,* and from *Lismore to Fermoy.*
352. Carmarthenshire; to confer further powers.
353. *Great Southern and Western;* a line from *Thurles to Clonmel.*
354. *Chichester and Midhurst;* for extension to *Haslemere.*
355. Bedford and Northampton; for maintaining.
356. *Blane Valley;* for extension.
357. *Drayton Junction;* for extension to *Bettisfield.*
358. For a line from *Girvan to East Challoch, in Wigtownshire.*
359. *Midland;* extension from *Mansfield to Southwell,* and from *Mansfield to Worksop.*
360. *The Newport and Usk.*
361. *Northampton and Banbury Junction;* a branch at *Blisworth.*
362. *Northampton and Banbury Junction;* extension to *Chipping Norton and Blockley.*
363. North Eastern; for alterations of line in Yorkshire.
364. *Great Western;* for branches from *Pontypool to Caerleon and Newport.*
366. For a *line to connect railways east and west of the Severn.*
367. *The South Wales and Great Western Direct.*
368. West Hartlepool and Cleveland; for amalgamation.
369. *The Limerick and North Kerry Junction.*
370. Bodmin and Wadebridge; for improvement, and to raise money.
371. Mid-Wales; for alteration of line.
373. *Cornwall;* a line from *Saltash to Tamar Kit-hill and Callington.*
374. *Launceston, Bodmin, and Wadebridge Junction;* for extension.
375. *North Kent;* for extension to the *Medway.*
376. *The Afon Valley, Glamorganshire.*
378. *Manchester, Sheffield, and Lincolnshire;* to make a line to *Liverpool.*
379. *London, Brighton, and South Coast;* for lines to *East Grinstead, &c.*
380. *South Wales;* a line to *Fishguard and a harbour there.*
381. Waterford and Passage; extension of time.
382. *The Dublin Metropolitan Junction.*

V. NAVIGATION:—

Rivers and Canals:—8. For making an embankment on the south shore of the Shannon near to Limerick.

79. To amend the provisions of the Acts relating to the company of proprietors of the Stourbridge Navigation.

228. For incorporating the Lymington River Company, and authorizing them to make improvements of the lower part of the Lymington river in connection with the Lymington docks, and to reclaim mud land opposite to the docks.

365. For authorizing the company of proprietors of the Regent's Canal to improve their Limehouse basin, and make a new entrance thereto from the Thames, and a wharf on the Thames, and other works, at Limehouse; and authorizing them to raise further money.

Harbours, Piers, and Docks:—30. To amend the Acts relating to the East and West India Dock Company.

33. To enable the Corporation of Bristol to improve the river Avon and the docks of Bristol.

46. For enabling the Corporation for preserving and improving the Port of Dublin to lay down and maintain tramways on the quays and elsewhere at Dublin; for amending the Acts relating to the Corporation.

67. To restore the exemption of goods loaded or unloaded on the lands or docks of Robert Vyner, Esquire, part of and adjoining to the Great Float at Birkenhead, from the payment of dock rates on goods to the Mersey Docks and Harbour Board.

78. To extend for a further period the powers of the Wexford Harbour Embankment Company for the completion of their undertaking; and to amend the Acts relating to the said company.

88. To authorize the construction of docks at King's Lynn, and for other purposes relating to that undertaking.

107. To empower the Ventnor Harbour Company to raise additional capital.

146. To authorize the construction of a pier in Morecambe Bay.

188. For amending and extending the Burnham Tidal Harbour Act, 1860, and for enlarging the powers of the Company.

274. To enlarge the powers of the Tyne Improvement Commissioners, and to facilitate the construction of the Tynemouth docks.

309. To authorize the construction of a pier at Burntisland and other works by the North British Railway Company; and for other purposes.

325. For the better regulation and management of the docks and other works at and near to Cardiff of the trustees and others claiming under the will of the late Marquis of Bute.

346. To authorize the Ryde Pier Company to construct certain tramways at Ryde in the Isle of Wight.

372. For authorizing the West London Docks and Warehouses Company to extend their limits of deviation; to divert or stop up roads; to alter and vary their rates and duties and rates of interest; to change their name; to raise further moneys.

377. To authorize the construction of a dock and other works at or near Newport on the western side of the river Usk, to be called the Alexandra Dock, and of railways to connect the same with neighbouring railways.

VI. MISCELLANEOUS:—

196. Authorizing the sale or transfer of Southwark bridge.

210. To give effect to an arrangement concerning the contribution payable under certain enactments by certain baronies in Roscommon and Galway and the county of the town of Galway to the Midland Great Western Railway of Ireland Company.

278. To make further provision for the prevention of accidents from gunpowder in the Mersey and in Liverpool.

VII. PRIVATE REGULATION:—

Of these there are ten, all relating to the settlement of estates, except two, one of which authorizes the provost of Trinity College, Dublin, to sell certain rights of fishing, and one to enable Abraham Edwards, clerk, to hold any benefice in the Church of England or Ireland.

XIII.—SUMMARY OF PUBLIC PETITIONS.

Session 28 & 29 Victoriæ.

I. *Parliamentary.*

	Petitions signed Officially or under Seal.	Total Number.	No. of Signatures.
Borough Franchise Extension Bill—in favour	9	14	6,672
Other Petitions on Parliamentary Subjects	10	14	409
Total Parliamentary . . .	19	28	7,081

II. *Ecclesiastical.*

Bishop's Palace, Bristol—for Restoration, &c.	1	55	1,816
Botanic Gardens (Edinburgh)—against opening on Sunday	79	264	6,843
Conventual and Monastic Establishments—for Inquiry	12	95	16,699
Ecclesiastical Establishments—for Inquiry	3	42	2,715
Established Church (Ireland)—against Disendowment	1	242	14,727
—— for Disendowment	1	357	153,873
Prisons Bill—for Provision	—	225	55,507
Roman Catholic Institutions—for withdrawal of Grants	—	1	7,642
Roman Catholic Oath Bill—against . .	12	52	11,751
Roman Catholic University (Ireland)—against granting Charter . . .	3	11	691
—— for granting Charter	13	253	73,807
Union Workhouses—against Appointment of Roman Catholic Chaplains thereto .	17	36	3,548
—— for appointment of Roman Catholic Chaplains thereto	—	18	3,514
—— for Providing Spiritual Instruction for Roman Catholic Children . . .	—	195	44,664
Other Petitions on Ecclesiastical Subjects .	77	188	4,326
Total Ecclesiastical . . .	219	2,034	402,123

III. *Colonial.*

Australia—against Transportation thereto .	8	26	15,996
Azeem Jah (Prince)—for Restoration of Rights	—	59	20,103
Other Petitions on Colonial Subjects. .	10	746	871
Total Colonial	18	831	36,970

IV. *Taxation.*

Attorneys' Certificates—for Repeal of Duty	12	75	1,595
British Spirits—for Alteration of Law .	2	17	1,057
Fire Insurance—for Repeal or Reduction of Duty	289	421	14,284
Carried forward . . .	303	513	16,936

	Petitions signed Officially or under Seal.	Total Number.	No. of Signatures.
Brought forward . . .	303	513	16,936
Income Tax—for Re-adjustment, &c. .	—	8	6,039
Licences (Public Houses)—for Alteration of Law	—	4	2,687
Malt—against Repeal of Duty . . .	7	25	2,347
—— for Repeal of Duty.	16	1,217	115,303
Taxation and Expenditure—for Reduction	1	10	7,301
Tea—for Postponement of Reduction of Duty, or the granting of a Drawback .	356	1,998	153,238
Other Petitions relating to Taxation .	—	73	1,692
	39	148	933
Total Taxation	356	1,998	153,238
V. *Miscellaneous.*			
Bank Notes Issue Bill—against . .	14	136	8,244
Battersea Bridge—for Abolition of Toll .	—	1	1,466
British Museum, &c.—for Opening Three Evenings in the Week	30	143	12,216
Chelsea New Bridge—for Abolition of Toll	—	1	1,255
Chemists and Druggists Bill—in Favour .	4	318	4,494
Ditto, No. 2 Bill—in Favour . . .	—	110	2,909
Customs Out-door Officers—for Inquiry into their Case	—	50	4,068
Education — complaining of Conscience Clause	8	75	1,328
—— for Alteration of Law as to Distribution of Funds	5	124	2,614
—— against Minute of 19th May, 1863, and 11th March, 1864	5	145	3,079
Masters and Workmen—for Alteration of Law	2	37	10,868
Metropolitan Toll Bridges Bill—for Alteration	7	11	2,473
Mines—for Alteration of Law. . .	1	57	54,644
Public House Closing Act (1864) Amendment Bill—in Favour	3	12	3,251
Tenant Right (Ireland)—for Alteration of Law	2	514	197,520
Union Chargeability Bill—against . .	41	242	9,178
—— for Alteration	22	78	2,552
—— in Favour	106	195	7,999
Vauxhall and Lambeth Bridges—for Abolition of Toll	—	21	3,234
Other Petitions on Miscellaneous Subjects	513	913	15,899
Total Miscellaneous . . .	763	3,163	349,331
Total Number . .	1,119	8,026	941,743

XIV.—CHRONICLE OF OCCURRENCES.

From November, 1864, to November, 1865.

Nov. 1, 1864. A violent cyclone in the Bay of Bengal, which extended along the coast from Calcutta to very nigh Madras. The waters of the Ganges were driven back by the wind, and submerged a large portion of the Sonderbunds; the island of Saugor was inundated, and 7,000 out of a population of 8,500 persons were drowned. But the greatest suffering was experienced at Masulipatam, where the sea broke into the land, along a space of more than eighty miles, and in some places to a distance of seventeen miles inland, destroying villages, crops, and cattle, filling up the wells, and, as the waters broke in during the night, allowing little chance of escape to the inhabitants.' The total loss of human life during the terrible night is estimated at not less than from 60,000 to 70,000 souls. On the flood retiring, the number of bodies of men and animals left behind was so great, that but for the strenuous exertions of the English authorities in burying and burning them, and providing food and shelter for the suffering survivors, an infectious fever would have followed close on the previous calamity.

Dec. 6. Abraham Lincoln, elected for a second time President of the Northern Division of the United States, sends the accustomed message to Congress. It announced a determination to continue the war with the South, and proposed the formation of a naval force on the Lakes, after giving six months' notice to England, in order to prevent raids of the Confederates from Canada.

21. General Sherman, with a Federal army, after having marched without obstruction from Alabama, in Georgia, to Savannah, in North Carolina, takes possession of that city without any resistance being made; General Hardee, the commander of the Confederate army, retreating, as not being strong enough to contest its possession.

24, 25. The Federal fleet attack Wilmington. After having exploded ineffectually a vessel with 215 tons of gunpowder under the walls of Fort Fisher, the outer fort which guarded the harbour, on the 24th, bombarding it on the 25th, and landing men to storm it, the attack was repulsed, the men re-embarked with great loss, and the fleet retreated.

Jan. 1, 1865. At Dundee a crowd, pressing for admission to an evening exhibition, burst the gate opening upon a flight of steps, down which the foremost were precipitated, and before the pressure could be restrained, there lay a prostrate heap six feet high; when extricated, nine young women and ten lads were dead, and many others found to be seriously injured.

13. On this day the attack on Fort Fisher was renewed, and a bombardment was continued until Sunday the 15th, when the works were stormed, and the garrison, amounting to 1,200 men, were compelled to surrender. The resistance had been obstinate, and the Federal loss was severe. Within a day or two of the capture, the powder magazine of the fort exploded, and 300 of the Federal troops perished.

30. The Surrey Theatre, in the Blackfriars Road, London, destroyed by fire. The fire commenced a little before the termination of the performance, but fortunately the audience, as well as the actors, were enabled to withdraw without any one being materially injured.

Feb. 15. The Session of the French Legislature opened by a speech from the Emperor, in which he congratulated them on the increased probability of a continued peace, with its accompanying prosperity, and spoke of the withdrawal of a French force from Rome; promised further progress in free trade by a removal of the French navigation laws; an extension of the powers of communes and departments to manage their local affairs without the intervention of the State; giving the right of provisional release, even in criminal cases, with or without bail, and suppressing altogether personal arrest in civil or commercial matters.

17. The Confederates were compelled to evacuate Charleston. Preparations had been made for several days preceding; all the wealthy inhabitants had removed; the guns were spiked, military stores destroyed, and the troops, about 14,000, retreated northwards. The Federals, on entering the town, found 200 pieces of cannon all spiked, and the fortifications uninjured. After they had obtained possession a fire broke out which destroyed 5,000 bales of cotton, and an explosion of a depôt occurred, by which several hundred lives were lost, chiefly residents of the town.

22. Wilmington, which, since the commencement of the Civil War in America, had been the chief port to which neutrals had run the blockade, was evacuated by the Confederates after the advanced forts had been captured by the fleet, and a superior force had advanced to the attack by land. The greater part of the Confederate forces were enabled to retreat after they had destroyed as much of the public property as they could.

28. The barge of the Thames Marine Officers' training-ship Worcester, lying off Erith, with a crew of twenty-two of the young cadets under the charge of an experienced boatswain, was suddenly capsized, and ten of the young men unfortunately drowned.

March 11. The bank of Atwood, Spooner, and Co., at Birmingham, stopped payment, with liabilities estimated at about a million.

11. The iron-workers of North Staffordshire having struck to resist a reduction of wages required by the masters to meet the fall in the price of iron; and having endeavoured to organize the means of obtaining support by allowing the workmen in other districts to accept the terms till the masters of North Staffordshire had been compelled to forego the proposed reduction; the iron-masters throughout the kingdom agreed to lock out all the men unless those of North Staffordshire accepted the offered terms. This was refused, and on this day the lock-out commenced. It is calculated that the total weekly wages amount to 120,000*l.*; the withdrawal of this occasioned extreme distress; while the foreign trade, which amounts to about 13,000,000*l.* a year, was to some extent interrupted and thrown into other channels.

20. On the appeal of Dr. Colenso, Bishop of Natal, against the sentence of the Bishop of Cape Town, who had deposed him from his bishopric, the Judicial Committee of the Privy Council decided that the Bishop of Cape Town had no jurisdiction over the Bishop of Natal, and had therefore no power to remove him from his office, and that the proceedings against Dr. Colenso were null and void in law.

April 2. The Federals under General Grant having broken through the Confederate defences around Petersburg, General Lee evacuated both Petersburg and Richmond, retreating northwards towards Lynchburg. Thus has ended a siege which, with occasional interruptions, had lasted for three years. In the last three days' fighting preceding the evacuation the Federals state that Lee's army lost 15,000 men in killed and wounded, that 12,000 were taken prisoners, and that their own loss amounted to 7,000.

4. The Great Main Drainage Works of London formally opened by the Prince of Wales, with a numerous assemblage of engineers and distinguished personages.

5. The lock-out in South Staffordshire terminated, the masters opening their works on the men promising not to subscribe towards maintaining the strike in North Staffordshire.

9. The Confederate army under General Lee surrenders to the Federal army under General Grant.

14. President Lincoln was shot through the head by an assassin while sitting in his private box at the theatre. The murderer leaped upon the stage, crying out "Sic semper tyrannis," and succeeded for the time in making his escape. President Lincoln died early on the following morning. On the same evening a murderous attack was made upon Mr. Seward, the assassin stabbing him in several places, killing one of his servants, and fracturing the skull of Mr. Frederick Seward, who inter-

fered to save his father. Andrew Johnson, the Vice-President, succeeded to Abraham Lincoln's office.

24. Death of the Czarewitch Nicholas, heir-apparent to the Emperor of Russia, aged twenty-one.

25. Constance Emily Kent, aged twenty-one, surrendered herself at the Bow-street Police-office, avowing herself to have been the murderer of Francis Saville Kent, her brother, in June, 1860, an event which at the time had excited great interest from the mysterious manner in which it had been effected. Her trial took place at Salisbury on July 21, her plea of guilty was admitted, and she was sentenced to death, with an intimation that her life would probably be spared; the sentence was commuted to penal imprisonment for life, with transportation to Freemantle.

26. Wilkes Booth, the asserted assassin of President Lincoln, having been tracked to a barn near Port Royal, on the Rappahannock, Maryland, was summoned to surrender by a troop of horse; he refused, fired at the sergeant of the troop, who returned the fire, and shot him through the head, of which wound he died in about three hours. A companion named Harrold, suspected of being an accomplice, was taken prisoner.

May 1. Addresses of condolence for and of horror at the crime of the assassination of President Lincoln, voted in the Houses of Lords and Commons. On the immediately following days similar addresses were voted in public meetings in every considerable town in the United Kingdom.

8. The Prince of Wales opens the Irish International Exhibition in Dublin, and in the evening attends at a ball given at the Mansion House by the Lord Mayor.

10. Jefferson Davis, President of the Confederate States, with his wife, sister, brother, and some members of his staff, captured at Irwinsville, in Georgia, by a detachment of Federal cavalry. The troops were divided into two parties, the more effectually to surround the place, and prevent the escape of Davis; but when meeting they mistook each other for hostile troops, and before the mistake was rectified two men were killed and several wounded. Mr. Davis has since been kept in close confinement.

22. President Johnson issues a proclamation for opening the blockaded ports of the United States from and after July 1, except those in the State of Texas; and on June 2 Earl Russell, in a letter to the Admiralty Board, announced that the Confederates would no longer be recognised as belligerents in British ports.

June 7. Accident on the Great Western Railway near Shrewsbury, owing to the rails being left unsecured, by which eleven persons were killed and between 40 and 50 injured. On the 9th, another accident arising from a similar cause occurred on the South-Eastern Line, at Staplehurst, in which 10 persons were killed and from 20 to 30 injured.

11. A Paraguayan fleet attack a Brazilian fleet in the Panama river, and after a severe conflict are defeated.

17. The Prussian Parliament prorogued. During the sitting the financial and military proposals of the government had been rejected, and in dismissing them the minister, Von Bismark, accused them of placing difficulties in the way of the ministry, which had proved detrimental to the welfare of the country; but that the government would still be carried on in the way indicated by itself, hoping that ultimately the house and the nation would approve and thank the king for the course pursued. The President of the House, Von Grabow, addressing the assembled representatives, said that the effort to transform a constitutional into an absolute police and military despotism had been carried to the utmost limit, and would be wrecked on the loyalty of the people, manifested by their choice of constitutional representatives.

July 7. Mrs. Surratt, Messrs. Payne, Azteroth, and Harrold, were hung at New York, after a trial before a court-martial lasting for many days, as guilty accomplices and conspirators with Booth in the murder of the late President Lincoln.

18 and 19. An earthquake on the slope of Mount Etna destroyed the village of Fondi di Macchia, and four other villages, with great loss of life.

20. The first stone of the new bridge at Blackfriars laid by the late Lord Mayor.

22. The Privy Council issue instructions for precautions to be taken to prevent the introduction of cholera at our sea-ports. The principal one was the forming of hospitals, to which seamen suffering from the disorder might be immediately removed on their arrival in port.

23. The Great Eastern, with the Atlantic cable on board, proceeds on her voyage for depositing it in the ocean. See the article on Ocean Telegraphy, *ante*.

August 2. An order issued by the Privy Council, including regulations for guarding against the Cattle Plague; and on Aug. 11, in consequence of its rapid spread, another order, commanding the destruction of infected beasts, and imposing a penalty of 20*l*. for infractions of the regulations. This was followed by other orders appointing inspectors at the ports to examine foreign cattle, and in country districts, to insure the carrying out of the orders in Council. On Sept. 22, in consequence of the plague having extended widely to sheep, a new order was issued, by which the previous orders were made to apply to all infected animals, the word animal to include "any cow, heifer, bull, bullock, ox, calf, sheep, lamb, goat, or swine." In October a Government Commission was appointed to investigate the cause and the means of repressing the disease.

11. An insurrection of the negroes in Jamaica broke out in the parish of St. Thomas in the East, near Morant Bay. The outbreak was accompanied by some atrocious murders, burning of property, and plunder. Military force was rapidly forwarded and the insurrection was prevented from spreading. The negro troops behaved with great faithfulness and courage.

16. A navigation treaty with Prussia signed.

19. A fearful loss of life occurred at Port Canning, Calcutta, occasioned chiefly by the misconduct of the drunken crew of a ship which was taking out a large number of coolies to Demerara. The ship struck on the Mutlah Sands, sprung a leak, began to sink, but not finally sinking for 24 hours. The crew abandoned her, and the steam-tug which had been employed in towing her down offered only a too tardy assistance, the consequence being that full 300 of the coolies were drowned, while a few who managed to swim to some adjacent mud islets were devoured by tigers.

26. The statue of the Prince Consort at Coburg uncovered in the presence of the Queen and all her children, the Duke of Saxe-Coburg, his brother, and other members of his family. The sculptor of the statue was Mr. Theed, and the whole expense was borne by the Queen and her children.

26. Austria and Prussia communicate to the Germanic Diet at Frankfort, the result of the interview at Gastein. They announce that the Duke of Augustenburg has no right to the duchies of Schleswig-Holstein, the King of Denmark being the legal possessor, who had resigned his rights to the two powers by the treaty of Vienna. They would, therefore, hold them jointly for the present. Lauenburg to be attached to Prussia, which pays Austria a certain sum of money.

29. The French fleet visit Portsmouth in return for the visit of the English fleet to Cherbourg, and the officers are magnificently entertained by the English officers and the mayor and corporation of the town.

Sept. 2. A deputation of upwards of 2,000 inhabitants of Schleswig-Holstein visit Copenhagen, and were received with great enthusiasm by the Danes.

5. A terrible fire took place at Constantinople, and was not extinguished till the 8th, in which 15,000 houses were destroyed, besides mosques and other public buildings, but without any loss of life. The cholera had been previously raging in the town, and its ravages were at once checked by the fire; in this respect resembling the Great Fire of London, which put an end to the plague.

15. The Dublin police take possession of the office of the *Irish People* newspaper, and seize the persons found on the premises, charged with

being members of the Fenian Brotherhood and engaged in treasonable attempts against the Government. On the same day numerous arrests were made in Cork, the persons arrested being charged with the like offence; but in their cases bail was taken for their appearance at a subsequent investigation, while at Dublin the persons charged were remanded to prison till another hearing. Other arrests followed, and on Sept. 20 some persons were apprehended in Manchester and Sheffield and conveyed to Dublin charged with complicity in the conspiracy. On Nov. 10, Stephen, *alias* Power, the reputed Chief Centre for Ireland, was apprehended, examined, and committed for trial.

Oct. 18. Viscount Palmerston, First Lord of the Treasury and Prime Minister, died, aged 81, and the Irish peerage becomes extinct. His lordship had been in office almost continuously from 1807, and at the head of the Cabinet from February, 1855, with the exception of the short interval of the Derby-Disraeli ministry, until his death. He was buried in Westminster Abbey on October 27.

24. Two decided cases of Asiatic cholera occurred at Southampton. The disease had been visiting some of the ports of the Mediterranean for upwards of two months previously, and had more recently shown itself in Paris, Madrid, Naples, and other places. The lowering of the temperature since September had, however, very considerably moderated the fatality of the disease, and the proportional cases of cure in the hospitals had largely increased.

31. Explosion of a gasometer at Nine Elms, Lambeth, by which ten persons were killed, twenty-two injured, most of them severely, and many of the neighbouring houses shattered to pieces.

Nov. 6. The Shenandoah, Confederate frigate, which had been destroying United States shipping in the Arctic Ocean, arrived in the Mersey, surrendering to the British Government on the 9th. The captain and crew having been set at large, the ship was delivered over to the Consul of the United States on the 9th.

9. The Irish International Exhibition closed.

XV.—NECROLOGICAL TABLE

OF LITERARY AND SCIENTIFIC MEN, ARTISTS, ETC.

1864.			Age.
Oct.	27.	Smith, Charles Harriott, architect	72
Nov.	6.	Sewell, Dr. Richard Clare, writer on law, &c.	60
	23.	Struve, F. W., Russian astronomer	71
	24.	Silliman, Benjamin, American chemist, &c.	85
	27.	Roberts, David, R.A.	68
	30.	Baikie, Dr., geographer and American explorer	about 40
Dec.	2.	Stephens, Serj. A. J., writer on law	78
	9.	Mocquard, Constant, French dramatist and statesman	73
	9.	Boole, Prof. George, mathematics and metaphysics	—
	28.	Markland, James Henry, antiquary	77
1865.			
Jan.	4.	Young, G. H. R., sculptor	39
	4.	Collins, J. R., novelist and dramatist	44
	15.	Everett, Edw., American statesman and writer	72
	16.	Ritchie, Leitch, novelist	64
	19.	Proudhon, P. J., French socialist	55
	20.	Neilson, C.B., engineer	72
	21.	Humphrys, Wm., engraver	71
	22.	Lee, Wm., painter in water-colours	55
	23.	Charras, Col., military tactics	57
	24.	Christie, Samuel Hunter, mathematician	81
	26.	Macleay, Wm. Sharp, botanist and zoologist	73
	31.	Falconer, Hugh, botanist and palæontologist	55

1865.		Age.
Feb.	11. Patten, George, A. R. A.	64
	11. Schomburgk, Sir R. H., botanist and erpetologist	60
	12. Ramsay, Prof. Wm., classical literature	59
	15. Wiseman, Cardinal N., theology and belles lettres	62
	15. Fraser, Alexander, artist	78
	17. Gratiolet, Fras. Pierre, physiologist	49
	27. Josika, Baron de, Hungarian novelist	76
March	15. Hartshorne, Rev. Chas. Henry, antiquarian	61
	20. Troyon, Constantine, French painter	54
	24. Nicholls, Sir George, writer on Poor Laws, &c.	84
	24. Kiss, August, German sculptor	64
April	1. Pasta, Judith, actress and singer	67
	2. Cobden, Richard, political economist	60
	10. Witherington, W. F., landscape painter	79
	11. Williams, Henry John [Boddington], landscape painter	53
	14. Gressly, Amand, Swiss geologist	51
	16. Lucas, Samuel, journalist	54
	27. Phillimore, John George, historian	56
	30. Fitzroy, Vice-Adm. R., meteorologist	60
May	4. Christy, Henry, antiquarian	56
	15. Smith, Alexander, botanist	32
	26. Waterton, Charles, naturalist	38
June	2. Kennedy, Wm. B., landscape painter	52
	5. Richardson, Sir John, traveller and naturalist	78
	8. Paxton, Sir Joseph, landscape-gardener, &c.	61
	11. Wraxall, Sir Lascelles, essayist, &c.	37
	11. Sigourney, Mrs. Lydia, American poetess, &c.	73
	19. Cooke, Wingrove, biography and history	52
	20. Lubbock, Sir John Wm., mathematician	63
	23. Taylor, Isaac, education, theology, &c.	77
	25. Ferguson, Dr. Robert, medicine	64
	26. Daniel, Wm. Francis, naturalist	47
July	11. Woodward, Dr. Sam. P., natural history	43
	11. Hildreth, Richard, American historian	58
	27. Parnell, Chas. Octavius, architect	58
Aug.	5. Aytoun, Prof. Wm. G., poetry and general literature	52
	10. Cuming, Hugh, conchologist	74
	11. Parkes, Joseph, politics	69
	12. Hooker, Sir W. J., botanist	80
	27. Haliburton, T. C. ("Sam Slick")	68
	31. Appold, John George, civil engineer	65
Sept.	2. Hamilton, Sir W. R., astronomer	60
	Encke, Johann Franz, German astronomer	74
	4. Bromme, Traugott, German geographer	94
	9. Smyth, Adm. W. H., astronomer and hydrographer	77
	10. Linley, Geo., ballad writer and composer	67
	22. Herring, John Frederick, animal painter	71
	30. Costello, Dudley, novelist and essayist	62
Oct.	6. Richardson, Dr. Charles, lexicographer	91
	8. Ernst, H. W., musician	51
	8. Stowell, Rev. Hugh, theologian	65
	12. Wallace, W. Vincent, composer	50
	17. Burder, W. C., meteorologist	43
Nov.	1. Lindley, John, botanist	66
	6. Lewis, Lady Theresa, biography, &c.	62
	9. Dupin, M. (l'Aîné), jurisprudence	83

In 1864, under April 5, 1863, Richard Taylor was erroneously given for John Taylor, an eminent mining engineer and mineralogist. He was brother of Richard, who died in 1858.

XVI.—Highest and Lowest Prices of the Principal Stocks from November 1864 to October 1865.

1864.	Bank Stock.	3 per Cent. Red.	3 per Cent. Cons.	New 3 per Cent.	India Stock.	Exchequer Bills. £1000.
November	239	89⅜	91½	89½	219	5 premium.
	237	87⅜	89¼	87⅜	214	10 discount.
December	240	88¾	90¾	88¾	221	6 premium.
	237	87⅞	88⅝	87⅞	217	par.
1865.						
January	245	89¼	90⅛	89⅛	216	5 premium.
	238	88½	89	88½	212	par.
February	249	89¾	89¾	89	218	8 premium.
	246	88¼	88¾	88¼	215	par.
March	248	88⅝	90	88⅛	218	7 premium.
	246	86½	88¼	86½	214	3 ,,
April	242	89⅜	91¼	89⅜	217½	8 ,,
	240	88	89¾	88	214	2 ,,
May	242	89⅛	91⅜	89⅜	218	7 ,,
	240	88	90¼	88	216	1 ,,
June	250	89⅜	91½	89¾	Shut	5 ,,
	241	88¾	89⅝	88¾		par.
July	250	90	90⅞	90	215	4 premium.
	246	89	89⅝	89⅛	213	par.
August	250	90¼	90¼	90⅛	222	3 premium.
	246	88⅞	89	88⅞	217	3 discount.
September	250	90	90⅛	90	222	3 premium.
	245	87¼	89⅛	87¼	218	5 discount.
October	250	87⅝	89¼	87½	220	2½ premium.
	247	86½	88⅜	86⅜	216½	5 ,,

The rate of discount at the Bank of England was reduced from 8 to 7 per cent. on Nov. 24, 1864; on Dec. 15, reduced to 6 per cent.; on Jan. 12, 1865, further reduced to 5½ per cent.; on Jan. 26, to 5 per cent.; on March 2, to 4½ per cent.; on March 30, to 4 per cent.; on May 4, raised to 4½ per cent.; reduced May 24, to 4 per cent.; reduced June 1, to 3½ per cent.; on June 15, to 3 per cent. on July 27, raised to 3½ per cent.; on Aug. 3, to 4 per cent.; on Sept. 28, to 4½ per cent.; on Oct. 2, to 5 per cent.; on Oct. 5, to 6 per cent.; on Oct. 7, to 7 per cent.

XVII.—Average Price of Corn, per Imperial Quarter, in England and Wales, for one Week in each Month.

1864.	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
November 19	38s. 9d.	29s. 9d.	19s. 5d.	29s. 9d.	37s. 9d.	35s. 3d.
December 17	38 1	28 4	19 9	29 1	37 2	35 3
1865.						
January 28	38 6	29 0	19 3			
February 18	38 4	29 2	19 1			
March 25	38 4	28 8	21 1			
April 22	39 7	30 0	22 7			
May 20	39 3	29 9	19 8			
June 24	41 3	27 5	23 3			
July 22	43 0	28 3	23 2			
August 26	42 4	30 0	24 0			
September 23	42 0	30 2	20 10			
October 14	41 11	30 9	20 11			

The 'Gazette' returns now only give the averages once a month, and only for Wheat, Barley, and Oats.

LONDON: PRINTED BY W. CLOWES AND SONS, 27 ST. AUGUSTINE STREET AND CHARING CROSS.

18 AP66

ALLIANCE

BRITISH AND FOREIGN

LIFE AND FIRE ASSURANCE COMPANY,

BARTHOLOMEW LANE, LONDON, E.C.

ESTABLISHED 1824.

Branch Offices:—Edinburgh, Liverpool, Manchester, Birmingham, Sheffield, Leeds, Ipswich, Bury St. Edmunds, Gosport.

Capital, FIVE MILLIONS Sterling.

President.

SIR MOSES MONTEFIORE, BART., F.R.S.

Directors.

JAMES ALEXANDER, Esq.
CHARLES G. BARNETT, Esq.
GEORGE H. BARNETT, Esq.
BENJAMIN COHEN, Esq.
JAMES FLETCHER, Esq.
WILLIAM GLADSTONE, Esq.
G. J. GOSCHEN, Esq., M.P.
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JAMES HELME, Esq.
SAMPSON LUCAS, Esq.
ELLIOT MACNAGHTEN, Esq.
THOMAS MASTERMAN, Esq.
JOS. M. MONTEFIORE, Esq.
Sir A. N. DE ROTHSCHILD, Bart.
BARON LIONEL N. DE ROTHSCHILD, M.P.
THOMAS CHARLES SMITH, Esq.

Auditors.—RICHARD HOARE, Esq.—C. M. LAMPSON, Esq.—HUGH COLIN SMITH, Esq.

Bankers.—Messrs. BARNETTS, HOARES, HANBURYS, & LLOYD.

Physician.—GEORGE OWEN REES, M.D., F.R.S., 26, Albemarle Street.

Standing Counsel.—ARTHUR COHEN, Esq.

Solicitors.—Messrs. PEARCE, PHILLIPS, AND PEARCE.

Surveyors.—WYATT PAPWORTH, Esq.—THOMAS G. ALLASON, Esq.

LIFE ASSURANCE.

LIFE ASSURANCES are granted under an extensive variety of forms, *with or without participation*, and at moderate premiums.

Special attention is called to the Tables of Rates for NON-PARTICIPATING ASSURANCES, which are calculated on the lowest scale consistent with safety.

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Capital, FIVE MILLIONS Sterling.

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FRANCIS A. ENGELBACH, *Actuary.*
D. MACLAGAN, *Secretary.*

ATLAS FIRE & LIFE ASSURANCE OFFICE,

92, CHEAPSIDE, LONDON.

Established 1808,

And Empowered by Act of Parliament of the 54th Geo. III. c. 79.

Capital, £1,200,000.

DIRECTORS.

Chairman.—THOMAS CHAPMAN, ESQ., F.R.S.
Deputy-Chairman.—BENJAMIN BUCK GREENE, ESQ.

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Medical Officer.—WILLIAM COULSON, ESQ., F.S.A.
Bankers.—Messrs. PRESCOTT, GROTE, CAVE and CAVE.

This Office has been established more than 57 years, and its present magnitude and prosperity prove the soundness of the principles on which it has been conducted.

LIFE DEPARTMENT.

The Accumulated Premiums are over £1,650,000. The Annual Income exceeds £170,000.

The sum of £4,301,661 has been paid in claims under Life Policies.

Large Bonuses have been declared and paid as additions to the amounts assured.

Premiums on Policies have been greatly reduced where parties have so applied the Bonuses on their Policies.

Persons Assuring in Great Britain have the option of *Participating Rates of Premium*, or of *Non-Participating Rates*.

Combined provision may be made for old age and early death, so that a person may secure a sum to be paid *to himself* at an age agreed upon, or to his executors if he should die before that age.

Residence in Countries beyond the limits of Europe is allowed on favourable terms; in most temperate climates without extra Premium, beyond a moderate charge for the voyage only. *Whole world* Assurances are granted.

Notices of the Assignment of Life Policies are received and acknowledged.

Advances are made on Policies to the extent of their value.

Persons desiring to surrender their Assurances may receive their value in money, or in lieu thereof, may obtain a new Policy *without further payment of Premium.*

The Directors are ready to receive proposals for Assurances or any contingency involving payment of a sum at death.

FIRE DEPARTMENT.

This Company undertakes the Assurance of almost every species of Property in the United Kingdom, at Rates of Premium and upon principles which will be found quite as advantageous to the interests of the Assured as those offered by any other Office. The Directors can confidently refer to the well-known character of the Company for liberality and promptitude in the discharge of claims made upon it during the many years it has been established.

No charge made for Policy Stamps.

Renewals should be paid within fifteen days after the respective Quarter-days when they become due.

Losses occasioned by *Lightning* will be paid. The Policies of the *Company* extend to cover *Losses* occasioned by the *Explosion of Gas.*

The Company is ready to receive applications for agencies in those Towns and Districts in which it is not at present represented. Application to be made to the Secretary.

N.B. GOVERNMENT DUTY.—*After Midsummer*, 1865, *all Fire Assurances are subject to the* REDUCED DUTY *of* 1s. 6d. *per cent., excepting Farming Stock, which is exempt from Duty.*

Tables of Rates, Forms of Proposal, and any information needful to effect Life or Fire Assurances, may be obtained on application to the Office, No. 92, Cheapside, London, or to any of the Company's Agents.

CROWN LIFE ASSURANCE COMPANY,

LONDON: 188, FLEET STREET, E.C.

EDINBURGH: 67, GEORGE STREET. DUBLIN: 46, DAME STREET.

INSTITUTED 1825.

Directors.

WILLIAM WHITMORE, Esq., *Chairman.*

OCTAVIUS OMMANNEY, Esq., *Deputy-Chairman.*

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J. C. H. COLQUHOUN, LL.B.
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GEORGE HANKEY, Esq.
Colonel J. A. V. KIRKLAND.
JAMES MITCHELL, Esq.
JOHN NELSON, Esq.
PARK NELSON, Esq.
CHARLES SPENCER PERCEVAL, Esq.
GEORGE SPARKES, Esq.
WILLIAM WILSON, Esq.

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Physician—ROBERT MARTIN, Esq., M.D. *Surgeon*—JOHN SIMON, Esq., F.R.S.

Solicitors—Messrs. BOYS and TWEEDIES, 6, Ely Place.

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ADAM MOSSMAN, Esq., Merchant.

Medical Officer — J. W. BEGBIE, Esq., M.D.

Secretary for Scotland—H. W. CORNILLON.

Whole-World Policies are issued, *at the Ordinary Home-rate of Premium*, to all Persons who, at the time of assuring, have no intention or prospect of proceeding beyond the limits of Europe.

Security, combined with other Advantages.

The **Sum Assured** now exceeds £3,215,000.

The **Annual Income** is Upwards of £140,000.

The **Funds Invested** amount to £1,014,000.

The **Bonuses** added to Policies amount to £567,000.

The **Sums Paid** to the Representatives of deceased Members exceed £1,550,000; *and the Company has not, in a single instance, been engaged in litigation with respect to the payment of the claims.*

The **Profits** are divided *quinquennially*—**Five-Sixths** being allotted to the Assured, and the remaining One-Sixth added to the Guarantee Fund, and permanently reserved as a Security to the Assured. The next Division will be in 1870.

Annual Cash Bonuses are allotted to Policies that become Claims any time after Three Years' Premiums have been paid.

The **Rates of Premium** will be found very advantageous, especially to Young Assurers.

The **Policy Stamp** and **Medical Fees** are paid by the Company.

The **Usual Commission** allowed to Solicitors and others introducing Assurances at the Head Office.

By Order of the Directors,

B. HALL TODD, *Secretary and Actuary.*

EAGLE INSURANCE COMPANY,

TEMPORARY OFFICES:—

MILTON CHAMBERS, 59, LUDGATE HILL,

LONDON, E.C.

DIRECTORS.

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GEORGE RUSSELL, Esq., *Deputy-Chairman.*

CHARLES BISCHOFF, Esq.
THOMAS BODDINGTON, Esq.
Sir JAMES BULLER EAST, Bart., D.C.L.
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THOMAS GODFREY SAMBROOKE, Esq.
Captain L. S. TINDAL, R.N.
Col. CHARLES WETHERALL, K.C.T.
Right Hon. Sir JOHN YOUNG, Bart.

Auditors.—THOMAS ALLEN, Esq. HENRY ROSE, Esq.

Medical Officers.—J. W. OGLE, M.D. WM. COOKE, Esq., M.D., *Surgeon.*

Bankers.—Messrs. GLYN, MILLS, and Co., 67, Lombard Street;
Messrs. BARNETT, HOARES, HANBURYS, and Co., Lombard Street.

Actuary and Secretary.—CHARLES JELLICOE, Esq.

The Business of the Company comprises Assurances on Lives and Survivorships, granting of Contingent Annuities, Loans of Money on Mortgage, &c.

The realized Assets of this Company amount to about Two Millions sterling.

The Annual Income is about Three Hundred and Ninety Thousand Pounds.

The number of existing Policies is upwards of Sixteen Thousand.

The total Amount Assured exceeds Nine Million Six Hundred Thousand Pounds.

The Divisions of Surplus are Quinquennial, and the whole surplus (less twenty per cent. only) is distributed amongst the Assured.

At the last Division of Surplus the additions to the Sums Assured, under Policies effected upon the participating scale, ranged, according to the age of the life assured, from 20 to 70 per cent. of the Premiums paid since 1857.

The Premiums required, although moderate, entitle the Assured to 80 per cent. of the Quinquennial Surplus.

The Lives assured are permitted, in time of Peace, without extra charge, to reside in any country (Australia and California excepted) north of 33 degrees north latitude, or south of 33 degrees south latitude, or to pass by sea (not being seafaring persons by profession) between any places lying north of 33 degrees north latitude, or lying south of 33 degrees south latitude.

All Policy Stamps and Medical Fees required on effecting Assurances are paid by the Company.

By recent enactments, persons are exempt, under certain restrictions, from Income Tax, as respects so much of their income as they may devote to Assurances on Lives.

The Annual Reports of the Company's state and progress, Prospectuses, and Forms, may be had, or will be sent, post free, on application at the Office, or to any of the Company's Agents.

EDINBURGH LIFE ASSURANCE COMPANY,

Established in 1823, *and Incorporated by Special Act of Parliament.*

CAPITAL, £500,000.

ACCUMULATED AND INVESTED FUNDS, NEARLY ONE MILLION STERLING.

EDINBURGH, 22, GEORGE STREET. GLASGOW, 65, ST. VINCENT STREET.
LONDON, 11, KING WILLIAM STREET, E.C., & 10, REGENT STREET, S.W.
DUBLIN, 55, SACKVILLE STREET.

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JOHN PHIN, Esq., S.S.C.
JOHN ELDER, Esq., W.S.
JOHN W. TAWSE, Esq., W.S.
DONALD MACKENZIE, Esq., Advocate.
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ARCH. W. GOLDIE, Esq., W.S.
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CHRISTOPHER DOUGLAS, Esq., W.S.
WILLIAM FORBES, Esq., Advocate.
ROBERT MOWBRAY, Esq., Banker.
JOHN HAMILTON, Esq., W.S.

Medical Officer—DOUGLAS MACLAGAN, M.D.
Solicitors—Messrs. HUGHES & MYLNE, W.S. *Auditor*—KENNETH MACKENZIE, Esq., C.A.
Manager—GILBERT L. FINLAY. *Secretary*—WILLIAM DICKSON. *Actuary*—JOHN CRAIG.

LONDON BOARD.

President—The Right Hon. EARL GRANVILLE, K.G.

The Hon. ROBERT DUNDAS.
JOHN ABEL SMITH, Esq., M.P.
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JOHN TAYLOR, Esq.
JOHN PHILLIPPS JUDD, Esq.
JOHN ANDERSON, Esq.
CHARLES STANIFORTH, Esq.
The Lord ALFRED PAGET.
JAMES BONAR, Esq.

Secretary—FREDERICK CHAPLIN.

WEST END OFFICE, 10, Regent Street, Capt. MACKENZIE.
Medical Officer—ROBERT DICKSON, M.D., 16, Hertford Street, May Fair.
Bankers—Messrs. SMITH, PAYNE, and SMITHS.
Solicitors—Messrs. ROWLAND and HACON, 31, Fenchurch Street.

SPECIMEN OF BONUS ADDITIONS PAID ON SOME OF THE OLDEST POLICIES.

No. of Policy.	Age at Assuring.	Age at Decease.	Sum Assured.	Bonus Additions.	Total Amount Paid.
			£.	£. s.	£. s.
691	60	89	1000	1733 15	2783 15
348	52	85	200	279 14	479 14
210	50	83	500	614 16	1114 16
44	49	83	200	232 18	432 18
647	51	82	500	505 3	1005 3
736	53	81	2000	1795 9	3795 9
282	46	78	500	430 0	930 0
51	52	81	1500	1076 12	2576 12
229	48	79	1000	659 10	1659 10
646	41	71	500	310 14	810 14

SPECIMEN OF RATES FOR ASSURING £100 ON A SINGLE LIFE.

Without Participation.				With Participation.	
Age.	1 Year.	7 Years.	For Life.	Age.	For Life.
	£. s. d.	£. s. d.	£. s. d.		£. s. d.
20	0 17 3	0 19 11	1 12 8	20	1 17 4
25	0 18 9	1 2 2	1 16 9	25	2 2 0
30	1 1 3	1 4 8	2 1 3	30	2 7 7
35	1 3 5	1 7 9	2 7 8	35	2 14 6
40	1 6 10	1 11 10	2 15 3	40	3 3 2
45	1 10 6	1 16 3	3 4 11	45	3 14 2
50	1 15 1	2 4 5	3 19 9	50	4 9 0
55	2 4 9	2 18 11	5 0 0	55	5 9 1
60	3 1 8	3 18 11	6 4 4	60	6 15 8

EQUITABLE ASSURANCE OFFICE,

NEW BRIDGE STREET, BLACKFRIARS.

Directors.

THE RIGHT HON. LORD TREDEGAR, *President.*

WILLIAM FREDERICK POLLOCK, Esq., JAMES SPICER, Esq., *Vice-Presidents.*

JOHN CHARLES BURGOYNE, Esq.
LORD GEORGE HENRY CAVENDISH, M.P.
FREDERICK COWPER, Esq.
CHARLES CURLING, Esq.
GEORGE FENNING, Esq.
RICHARD GOSLING, Esq.
PETER MARTINEAU, Esq.
JOHN ALLDIN MOORE, Esq.
SIR ALEXANDER MORRISON, M.D.
JOHN COYSGARNE SIM, Esq.
GEORGE SCOVELL, Esq.
JOHN CHARLES TEMPLER, Esq.

The EQUITABLE, established in 1762, was one of the earliest Offices on the Mutual principle.

The entire profits are divisible among its members, no portion of the same being diverted either for dividends on shares, as in 'proprietary' offices, or for 'commission' to agents.

Since its establishment in the year 1762 it has paid £17,000,000 in claims, and £15,900,000 for bonuses on the same.

The Invested Capital on the 31st of December, 1864, exceeded £4,500,000 sterling.

The reserve at the last rest, in December 1859, exceeded £700,000, as a basis for future divisions.

Under the bye-law of the 19th of December, 1816, the oldest 5,000 policies are admitted to participation in the bonuses.

New Assurers in the current year (1866) will be placed among the number after payment of their first premium, and will become entitled to a rateable share in the bonus to be made in December, 1869, on payment of the Annual Premium in 1871.

Surrender of Policies.—The full value is paid on surrender, without any deduction.

Loans on Policies.—The Directors will make advances on deposit of the Policies.

TABLE OF ANNUAL PREMIUMS for assuring the sum of £100 upon the Life of any Healthy Person from the Age of Eight to Sixty-seven.

Age.	For the whole Life.	Age.	For the whole Life.	Age.	For the whole Life.	Age.	For the whole Life.
8 to	£. s. d.		£. s. d.		£. s. d.		£. s. d.
14	1 17 7	28	2 11 1	42	3 11 8	56	5 10 1
15	1 18 7	29	2 12 3	43	3 13 8	57	5 14 0
16	1 19 8	30	2 13 5	44	3 15 9	58	5 18 2
17	2 0 8	31	2 14 7	45	3 17 11	59	6 2 8
18	2 1 8	32	2 15 9	46	4 0 2	60	6 7 4
19	2 2 8	33	2 17 1	47	4 2 7	61	6 12 4
20	2 3 7	34	2 18 5	48	4 5 1	62	6 17 9
21	2 4 6	35	2 19 10	49	4 7 10	63	7 3 7
22	2 5 4	36	3 1 4	50	4 10 8	64	7 9 10
23	2 6 3	37	3 2 10	51	4 13 6	65	7 16 9
24	2 7 1	38	3 4 6	52	4 16 5	66	8 4 1
25	2 8 1	39	3 6 2	53	4 19 7	67	8 12 1
26	2 9 1	40	3 7 11	54	5 2 10		
27	2 10 1	41	3 9 9	55	5 6 4		

☞ *A Court of Directors is held every* Wednesday, *from Eleven to One o'Clock, to receive Proposals for new Assurances; and a Short Account of the Society may be had on Application, personally or by post, at the Office.*

ARTHUR MORGAN, *Actuary.*

EQUITY AND LAW LIFE ASSURANCE SOCIETY,

18, LINCOLN'S-INN FIELDS, LONDON, W.C.

CAPITAL £1,000,000, FULLY SUBSCRIBED.

Trustees.

THE RIGHT HON. THE LORD HIGH CHANCELLOR.

THE RIGHT HON. LORD MONTEAGLE.
THE RIGHT HON. THE LORD CHIEF JUSTICE ERLE.
THE RIGHT HON. THE LORD CHIEF BARON.
THE RIGHT HON. SIR J. TAYLOR COLERIDGE.
CHARLES PURTON COOPER, Esq., Q.C., LL.D., F.R.S.
GEORGE CAPRON, Esq.

Directors.

GEORGE LAKE RUSSELL, Esq., *Chairman.*

JOHN MOXON CLABON, Esq., *Deputy-Chairman.*

J. E. ARMSTRONG, Esq.
HENRY WILLIAM BIRCH, Esq.
HENRY FOX BRISTOWE, Esq.
ROBERT J. P. BROUGHTON, Esq.
ANTHONY CLEASBY, Esq., Q.C.
JOHN ELLIS CLOWES, Esq.
CHARLES J. DIMOND, Esq.
SIMON DUNNING, Esq.
JOHN WILLIAM HAWKINS, Esq.
WILLIAM E. HILLIARD, Esq.
N. HOLLINGSWORTH, Esq.
THOMAS HUGHES, Esq.
JOHN ILIFFE, Esq.
THOMAS GLOVER KENSIT, Esq.
CHARLES HENRY MOORE, Esq.
EDMUND F. MOORE, Esq.
WILLIAM BENFORD NELSON, Esq.
FREDERICK PEAKE, Esq.
GEORGE W. K. POTTER, Esq.
THE QUEEN'S ADVOCATE.
W. B. S. RACKHAM, Esq.
GEORGE ROBINS, Esq.
ALFRED H. SHADWELL, Esq.
RICHARD SMITH, Esq.

Auditors.

Elected by the Proprietors.
JOHN BOODLE, Esq.
ELLIS CLOWES, Esq.

Elected by the Assured.
JOHN C. TEMPLER, Esq.
ARTHUR H. BAILEY, Esq.

Solicitor.—GEORGE ROOPER, Esq., 26, Lincoln's-inn Fields.

Medical Officer.—W. O. MARKHAM, M.D., 3, Harley Street.

Actuary and Secretary.—THOMAS BOND SPRAGUE, Esq., M.A.

The NEW BUSINESS of 1864 comprised 190 Policies, insuring the sum of £308,645; and the Premiums received thereon amounted to £10,666 4*s.* 4*d.*

The total INCOME of 1864 was £93,369., and the total OUTGOINGS £46,048. The difference, £47,321, or more than 50 per cent. of the whole Income, being added to the Assets, as the result of the year's transactions. The amount of the ASSETS on the 31st December, 1864, was £443,966.

The EXPENSES of MANAGEMENT are now less than *Four per cent.* on the Income.

The PREMIUMS are calculated for every half-year of Age.

The realized PROFITS are ascertained every Five Years; and NINE-TENTHS of the whole are divided among the Assured. As considerably more than one-tenth of the Profits is derived from Policies which do not participate in the Profits, it will be seen that the Assured have greater advantages in this Society than if they formed a Mutual Insurance Company, dividing among themselves the whole of the Profits derived from their own Policies.

At the FOURTH QUINQUENNIAL DIVISION of Profits, to the 31st December, 1864, the sum of £62,961, was divided among the Assured holding Policies for £1,339,608; the additions thus made to the sums assured amounting to £112,000.

The Conditions of the Policies allow persons whose lives are insured to reside or travel in any part of the world distant more than 33° from the Equator.

Policies in the hands of third parties are not vitiated by suicide, or by the life assured transgressing the stipulated limits.

The Business of the Society includes the Purchase and the Granting of LOANS upon the security of Life Interests and Reversions; also the Granting of IMMEDIATE ANNUITIES.

The ANNUAL REPORTS of the Directors are regularly printed, with full accounts of the Receipts and Expenditure, and may be obtained by written or personal application at the Office.

GUARDIAN
FIRE AND LIFE ASSURANCE COMPANY,

No. 11, LOMBARD STREET, LONDON, E.C.

ESTABLISHED 1821.

SUBSCRIBED CAPITAL, £2,000,000.

Directors.

CHARLES WILLIAM CURTIS, Esq., *Chairman.*
CHARLES F. DEVAS, Esq., *Deputy-Chairman.*

HENRY HULSE BERENS, Esq.
H. BONHAM-CARTER, Esq.
FRANCIS HART DYKE, Esq.
Sir MINTO FARQUHAR, Bart., M.P.
Sir WALTER R. FARQUHAR, Bart.
JAMES GOODSON, Esq., M.P.
THOMPSON HANKEY, Esq., M.P.
JOHN G. HUBBARD, Esq., M.P.
FREDERICK H. JANSON, Esq.
G. J. SHAW LEFEVRE, Esq., M.P.
JOHN MARTIN, Esq.
ROWLAND MITCHELL, Esq.
JAMES MORRIS, Esq.
HENRY NORMAN, Esq.
HENRY R. REYNOLDS, Esq.
ABRAHAM J. ROBARTS, Esq.
WILLIAM STEVEN, Esq.
HENRY VIGNE, Esq.

Auditors.

CORNELIUS PAINE, Jun., Esq.; HENRY SYKES THORNTON, Esq.; NOEL WHITING, Esq.

THOMAS TALLEMACH, Esq., *Secretary.* SAMUEL BROWN, Esq., *Actuary.*

Superintendent of Fire Department.—ISAAC DELVALLE, Esq.
Physician.—Dr. J. RUSSELL REYNOLDS, 38, Grosvenor Street.
Solicitors.—Messrs. PARKIN and PAGDEN, 5, New Square, Lincoln's Inn.
Bankers.—Messrs. MARTIN, 68, Lombard Street; Messrs. COUTTS, Strand.

LIFE DEPARTMENT.

Under the Provisions of an Act of Parliament, this Company now offers to new Insurers EIGHTY PER CENT. OF THE PROFITS, AT QUINQUENNIAL DIVISIONS, OR A LOW RATE OF PREMIUM, without participation of Profits.

Since 1821, Reversionary Bonuses of £1,150,000 have been allotted to the Assured out of Profits.

At Christmas, 1864, the Life Assurances in force, exclusive of Bonuses thereon, amounted to upwards of £4,500,000, the Income from the Life Branch £212,000 per annum, and the Life Assurance Fund (independent of the Capital) £1,656,000, while the total claims paid (independent of Bonuses) amounted to £4,176,409.

Example of Annual Premiums for the Assurance of £100 on Death.

Age.	With Profits.	Without Profits.	Age.	With Profits.	Without Profits.
	£. s. d.	£. s. d.		£. s. d.	£. s. d.
20	2 1 0	1 13 3	40	3 5 0	2 17 0
25	2 5 4	1 17 4	45	3 14 11	3 6 11
30	2 10 7	2 2 7	50	4 8 0	4 0 0
35	2 17 0	2 9 0	60	6 7 2	6 0 0

N.B.—With a view to render Life Policies more available as Securities, Policies will be issued in certain cases free from ALL restrictions as to Foreign Travelling or Residence.

Policies issued free of every charge except the Premium.

FIRE DEPARTMENT.

Insurances effected on every description of Property at home and abroad. Annual Premium for £100 on Ordinary Risks is 1*s.* 6*d.* The annual Duty to Government is reduced to 1*s.* 6*d.* for £100. Policies are issued free of every charge except for Premium and Annual Duty.

No expense in transferring from another Office. Claims liberally and promptly settled. Forms of Proposal and every information may be obtained from the Office.

T. TALLEMACH, *Secretary.*

THE LONDON ASSURANCE CORPORATION,

For Fire, Life, & Marine Assurances.

Incorporated by Royal Charter, A.D. 1720.

OFFICES—No. 7, ROYAL EXCHANGE, E.C.; AND No. 7, PALL MALL, S.W.

BONAMY DOBREE, Esq., *Governor.*
PATRICK F. ROBERTSON, Esq., M.P., *Sub-Governor.*
RICHARD BAGGALLAY, Esq., *Deputy-Governor.*

Directors.

NATH. ALEXANDER, Esq.	F. G. DALGETY, Esq.	LOUIS HUTH, Esq.
J. ALVES ARBUTHNOT, Esq.	JOHN ENTWISLE, Esq.	CHARLES LYALL, Esq.
HENRY BONHAM BAX, Esq.	GEO. LOUIS M. GIBBS, Esq.	JOHN ORD, Esq.
JAMES BLYTH, Esq.	ROBERT GILLESPIE, Esq.	CAPT. R. W. PELLY, R.N.
EDWARD BUDD, Esq.	HARRY GEO. GORDON, Esq.	DAVID POWELL, Esq.
ALFRED D. CHAPMAN, Esq.	EDWIN GOWER, Esq.	WILLIAM RENNIE, Esq.
MARK W. COLLET, Esq.	A. C. GUTHRIE, Esq.	WILLIAM B. WATSON, Esq.
SIR F. CURRIE, Bart.	JOHN ALEX. HANKEY, Esq.	LESTOCK P. WILSON, Esq.

Secretary.—JOHN LAURENCE, Esq. *Actuary.*—ARTHUR H. BAILEY, Esq.
Underwriter.—JOHN ANTHONY RUCKER, Esq.
Manager of the Fire Department.—THOS. B. BATEMAN, Esq.
Physicians.—GEORGE BUDD, M.D., F.R.S., 20, Dover-street, Piccadilly;
EDWARD CLAPTON, M.D., 4, St. Thomas's-street, Southwark.

LIFE DEPARTMENT.

This Corporation has granted Assurances on Lives for a *period exceeding* ONE HUNDRED AND FORTY YEARS, having issued its first Policy on the 7th June, 1721.

Two-thirds of the entire Profits, *without any deduction for expenses of management*, are allotted to the Assured. This arrangement will be found to be more advantageous to the Policy-holders, than an apparently larger proportion of the Profits, subject to the expenses of management.

Assurances may be effected without Participation in Profits, at low rates of Premium, or with Participation in Profits, upon either of the following plans, viz.:

By an Annual Abatement of Premium on Policies of Five Years' Standing and upwards. Upon this plan the abatement from the original Premium for the year 1865 was at the rate of 40 per cent.

By appropriating the Profits at the end of every Five Years, either in increase of the Sum Assured, or as an immediate Cash payment.

Examples of the Bonus additions to the Sum Assured on Policies of Fifteen Years' standing are subjoined.

Age when Assured.	Sum Assured.	Bonus Added.	Age when Assured.	Sum Assured.	Bonus Added.
	£.	£. s. d.		£.	£. s. d.
27	1,000	209 10 0	42	1,000	257 11 0
31	1,000	233 5 0	50	1,000	262 6 0
36	1,000	243 14 0	60	1,000	297 2 0

FIRE DEPARTMENT.

Fire Insurances effected at Moderate Rates upon every Description of Property.

DAMAGE CAUSED BY EXPLOSION OF GAS MADE GOOD.

Commission allowed to Brokers and Agents effecting Foreign and Ship Insurances.

MARINE DEPARTMENT.

Marine Insurances are effected at the HEAD OFFICE of the Corporation.

The next Division of Profit made up to the 20th November, 1867.

NATIONAL PROVIDENT INSTITUTION.

GRACECHURCH STREET, LONDON.

Established December, 1835.

MUTUAL ASSURANCE WITHOUT INDIVIDUAL LIABILITY.

Directors.

Chairman.—SAMUEL HATHURST LUCAS, Esq.

Deputy-Chairman.—ROBERT INGHAM, Esq., M.P.

JOHN BRADBURY, Esq.
HENRY WHITE CASTLE, Esq.
THOMAS CHAMBERS, Esq., M.P.
JOSEPH FELL CHRISTY, Esq.
HENRY CONSTABLE, Esq.
JOHN FELTHAM, Esq.
JOSEPH FREEMAN, Esq.
CHARLES GILPIN, Esq., M.P.
CHARLES REED, Esq., F.S.A.
JONATHAN THORP, Esq.
CHARLES WHETHAM, Esq.

Medical Officers—THOMAS HODGKIN, Esq., M.D. JOHN GAY, Esq., F.R.C.S.

Solicitor—SEPTIMUS DAVIDSON, Esq. *Consulting Actuary*—CHARLES ANSELL, Esq., F.R.S.

Secretary—GEORGE MORRIS, Esq.

Amount of Profit of the Five Years ending 20th November, 1862, £531,965 3s. 4d.

Making the TOTAL PROFIT divided, £1,227,258 5s. 3d.

INSTANCES OF REDUCTIONS IN PREMIUMS.

Date of Policy.	Age.	Sum Assured.	Original Premium.	Premium now Payable.	Reduction per cent.
		£.	£. s. d.	£. s. d.	
October, 1836	49	1000	43 11 8	0 7 10	99
March, 1840	48	200	8 10 4	1 19 4	77
January, 1839	36	1000	29 10 0	10 12 8	64
December, 1850	58	2000	126 0 0	64 6 8	49
January, 1852	35	500	14 11 8	9 2 8	37½
January, 1859	49	3000	132 0 0	98 7 10	25½

THE FOLLOWING ARE A FEW INSTANCES WHEREIN THE PREMIUMS HAVE BECOME EXTINCT, AND ANNUITIES FOR THE NEXT FIVE YEARS GRANTED IN ADDITION.

Date of Policy.	Age.	Sum Assured.	Original Premium now extinct.	Annuity Payable.
		£.	£. s. d.	£. s. d.
April, 1836	54	1000	52 0 0	8 3 8
August, 1836	56	500	29 3 4	9 1 3
August, 1837	60	2000	135 3 4	75 6 8
March, 1842	61	500	32 19 2	1 17 4

The Amount of Claims paid to the 20th Nov. 1864, was £1,611,165 5*s.* 3*d.*

The Gross Annual Income was £388,791 18*s.* 7*d.*

The Accumulated Fund £2,420,953 14*s.* 0*d.*

The Prospectus, with the last Report of the Directors, and with Illustrations of the Profits for the Five Years ending 20th Nov. 1862, and every information, may be had on application.

October 19, 1865.

GEORGE MORRIS, *Secretary*.

NORWICH UNION FIRE OFFICE.

INSTITUTED 1797.

Office—29, FLEET STREET, E.C.

Secretary.—Sir SAMUEL BIGNOLD. **London Agent.**—C. J. BUNYON, Esq.

INSURANCES are granted by this Society on buildings, goods, merchandise, and effects, ships in port, harbour, or dock, from loss, or damage by fire, in any part of the United Kingdom of Great Britain and Ireland.

THE BONUS SYSTEM.

THE FULL BENEFIT of the REDUCTION of DUTY to 1s. 6d. per cent. is given to Insurers effecting Policies with this Company. By this REDUCTION and the BONUS SYSTEM of the NORWICH UNION the COST of INSURANCE is REDUCED to a MINIMUM AMOUNT.

EXAMPLES OF PREMIUMS REDUCED BY THIS BONUS.

No. of Policy.	Sum Assured.	Annual Premium.	Reduced Premium for 1864.
	£.	£. s. d.	£. s. d.
441,411	92,540	222 4 4	120 19 2
450,156	12,000	63 0 0	35 0 0
484,173	6,800	35 14 0	19 16 8
506,957	5,000	7 10 0	4 6 4

The Rates of Premium are in no case higher than those charged by the other principal Offices giving no Bonus to their Insurers.

No charge is made for the Policy or Stamp when the Insurance exceeds £300, or for Insurances transferred from other Offices.

The Business of the Company exceeds Seventy Millions, and, owing to the liberality with which its engagements have been performed, is rapidly increasing. The duty paid to Government for the year 1863 was £84,152 11s. 9*d*; the amount insured on Farming Stock was £10,203,272.

The Norwich Union Fire Office is the LARGEST OFFICE making a return to its Insurers.

NORWICH UNION LIFE INSURANCE SOCIETY.

INSTITUTED 1808, UPON THE PRINCIPLE OF MUTUAL ASSURANCE.

Office—29, FLEET STREET, E.C.

Secretary.—Sir SAMUEL BIGNOLD. **Actuary.**—C. J. BUNYON, Esq.

The Whole of the Profits belong to the Assured.

The Accumulations exceed £2,000,000.

The Income of the Society exceeds £250,000.

The Amount Assured is upwards of £5,570,000.

Since its commencement, 35,100 Policies have been issued, and £6,565,358 paid to the representatives of 7,820 deceased Members.

The Bonuses may be applied at the option of the Assured in reduction of the future Annual Premium, or their cash value received.

The Rates of Premium are 10 per cent. less than those of most Offices—a benefit in itself equivalent to an Annual Bonus. One-half of the first five Annual Premiums may remain as a permanent charge upon Policies effected for the whole duration of life.

Annuities and Special Risks are undertaken upon favourable terms.

This Society is entirely distinct from the Norwich Union Fire Office. The aggregate Annual Income of the two Societies is nearly HALF A MILLION STERLING.

For Prospectuses apply to the Society's Offices, 29, Fleet Street, E.C., and Surrey Street, Norwich.

Universal Life Assurance Society,

1, KING WILLIAM STREET, LONDON, E.C.

(Established 1834.)

WITH BRANCHES AT CALCUTTA, MADRAS, AND BOMBAY.

DIRECTORS.

JOHN FARLEY LEITH, Esq., *Chairman.*

FRANCIS MACNAGHTEN, Esq., *Deputy-Chairman.*

AUGUSTUS BOSANQUET, Esq.
GEORGE HENRY BROWN, Esq.
The Honourable JAMES BYNG.
ELLIS WATKIN CUNLIFFE, Esq.
OSGOOD HANBURY, Jun., Esq.
HERBERT GEO. JONES, Serj.-at-Law.
WILLIAM NORRIS NICHOLSON, Esq.
Sir MACDONALD STEPHENSON.

FREDK. HENDRIKS, Esq., *Actuary and Secretary.*

TOTAL ASSURANCES ISSUED TO DECEMBER, 1864	**£7,304,040**
SUMS ASSURED WITH BONUSES EXISTING	**2,411,475**
TOTAL CLAIMS PAID	**1,378,339**
ACCUMULATED FUNDS EXCEEDED	**818,594**
ANNUAL REVENUE EXCEEDED	**137,000**

At the 31st Annual General Meeting an ABATEMENT was made on ALL PREMIUMS upon PARTICIPATING POLICIES of SIX YEARS' Standing, for the Year ending May 9th, 1866, at the RATE of 50 PER CENT., or TEN SHILLINGS in the POUND; and LARGE REVERSIONARY BONUSES were also added to Policies, the holders of which had signified their option in favour of the AMOUNT ASSURED being INCREASED instead of their Premiums being Reduced.

EXAMPLES OF REDUCED PREMIUMS ON POLICIES IN THE UNIVERSAL OFFICE.

Age in Policy.	Sum Assured on Lives in England.	Original Premium.	Reduced Premium for next Year.
	£	£ s. d.	£ s. d.
20	1000	19 6 8	9 13 4
30	1000	24 8 4	12 4 2
40	1000	31 10 0	15 15 0

Age in Policy.	Assured on Lives in India.	Original Premium.	Reduced Premium next Year.	Further Reduced Premium, if in Europe.
		(CIVIL.)		
	£	£ s. d.	£ s. d.	£ s. d.
20	1000	42 0 0	21 0 0	9 13 4
30	1000	48 0 0	24 0 0	12 4 2
40	1000	59 0 0	29 10 0	15 15 0
		(MILITARY.)		
20	1000	47 0 0	23 10 0	9 13 4
30	1000	54 0 0	27 0 0	12 4 2
40	1000	63 0 0	31 10 0	15 15 0

GENERAL
LIFE AND FIRE ASSURANCE COMPANY,
62, KING WILLIAM STREET, E.C., LONDON.

ESTABLISHED 1837.

CAPITAL, £1,000,000.

Directors.

THOS. CHALLIS, Esq., Ald., *Chairman.* JAMES PILKINGTON, Esq., *Deputy-Chairman.*

JAMES ABBISS, Esq., Alderman.
JACOB GEORGE COPE, Esq.
WILLIAM DELF, Esq.
BENJAMIN EDGINGTON, Esq.
JOHN T. FLETCHER, Esq.
CHARLES JAMES HEATH, Esq.
ANDREW LUSK, Esq., Alderman, M.P.
EDWARD STEANE, D.D.
RIGHT HON. C. F. VILLIERS, M.P.
EDWARD WILSON, Esq.

THOMAS PRICE, LL.D., *Secretary.*

Progress of the Company.

The new Life Business of the last Quinquennial Period, which closed 31st December, 1862, was 148 per cent. more than that of the preceding similar term; while the Fire Premiums were 185 per cent. more.

A Bonus of 22 per cent., equal to a Reversionary Bonus of from 30 to 60 per cent., according to the age of the Assured, has just been declared.

Distinctive Features.

Prompt settlement of Claims, entire freedom of the Assured from responsibility, and the guaranteeship of a Capital of £1,000,000.

LIFE.—Policies assigned as Security not forfeited by Duelling, Suicide, or the execution of Judicial sentences.

Policies valid though the Assured die within the days of grace, prior to payment of the Renewal Premium.

FIRE.—Houses, Furniture, Stock-in-Trade, Farming Stock, Mills, Merchandise, Rent, Shipping in Docks, and other Risks, insured at moderate rates.

Premiums for renewal of Fire Policies received during the days of grace, whether a Fire has occurred or not, unless advised that renewal was not intended.

LOANS are advanced on personal security, and the deposit of a Life Policy.

A Liberal Commission allowed to Solicitors, Auctioneers, and Surveyors.

GOVERNESSES' BENEVOLENT INSTITUTION.

INCORPORATED BY ROYAL CHARTER,

WITH POWER TO HOLD LAND BY GIFT, PURCHASE, OR BEQUEST.

BOARD OF MANAGEMENT.

THE HON. WILLIAM ASHLEY.
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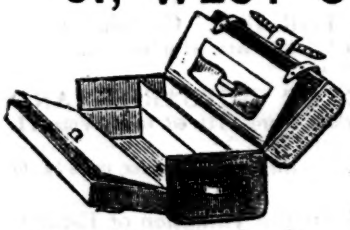

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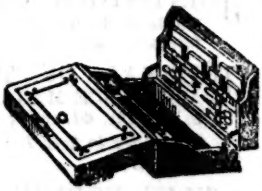

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